

# NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

**Making the Web Whiz**

Sitara's Speed-Server can add zip to your Web site. Our review, page 53.

1998 Network World Network Management Survey

## A (barely) passing grade

WEB-BASED TOOLS  
HELP NET MANAGEMENT  
VENDORS BOOST RATING  
IN ANNUAL SURVEY,  
BUT AGE-OLD  
PROBLEMS PERSIST

**T**he move to Web-based management tools is on, and users are reaping at least some of the promised benefits. But age-old problems of automation, reliability and integration of network and systems management tools remain largely unsolved.

That sums up the findings of the 1998 Network World Network Management Survey. Analysts at Deloitte & Touche Consulting Group, sponsors of the survey, say vendors scored only a solid C on their ability to deliver features readers are looking for.

Turn to page 47 to check out the full details from our survey of 202 Network World readers.

## Key e-commerce spec gets off to a slow start

By Ellen Messmer

Unveiled a year ago amid much fanfare, the Open Buying on the Internet (OBI) specification was going to usher in a new age of electronic commerce.

But few vendors have built OBI into their products, and even the specification's advocates now admit that the first edition of OBI has not worked well. These supporters are hopeful, though, that OBI will

start delivering once the OBI Consortium releases a revised  
*See OBI, page 67*

Get more online:

- A copy of the current OBI spec
- Overviews of how it's supposed to work

[www.nwfusion.com](http://www.nwfusion.com)

## Extreme preps monster switch

By Michael Cooney and Sandra Gittlen  
Las Vegas

Extreme Networks, Inc. didn't exactly announce its new backbone switch last week, but it was hard to ignore the big purple Gigabit Ethernet chassis sitting in the company's booth at

NetWorld+Interop 98.

The company demonstrated the unnamed 10-slot device for those who asked and, when pressed, divulged details about the switch, which is scheduled to ship by year-end.

Extreme said the product  
*See Extreme, page 10*

# Vendors cautious about SNMPv3

Leading firms demo latest management technology, but are quiet on shipment plans.

By Jim Duffy  
Las Vegas

Vendors are cautiously promoting Version 3 of SNMP, but with the painful experience of Version 2 still fresh in their minds, most are keeping mum about when they will incorporate SNMPv3 into products.

Ten companies, including Cisco Systems, Inc., Hewlett-Packard Co. and IBM used NetWorld+Interop 98 to dem-

onstrate the new security and administrative capabilities that are key components of SNMPv3. These features were supposed to be in SNMPv2, but infighting among the protocol's authors splintered, then dissolved the IETF SNMPv2 working group two years ago.

The group has quietly reassembled since then, and SNMPv3 specifications were published

in January. But vendors are still uneasy about committing to a shipping date for SNMPv3-compliant products.

**NI**  
COVERAGE

HP, for example, said it probably will not include SNMPv3 in a new release of OpenView Network Node Manager scheduled for this summer.

"We got burned with Version 2," said Peter Houck, software developer.  
*See SNMP, page 8*

## Net industry puts on a show

By Network World staff  
Las Vegas

Some 55,000 network managers flocked to this glittering desert oasis last week in their annual pilgrimage to the network industry's mecca: NetWorld+Interop.

The show has always been the place to scope out the future, and this year's event was no exception. Customers heard it all, from the latest on running voice over IP to Microsoft Corp.'s  
*See Interop, page 68*



### NETWORLD+INTEROP 98

COMPLETE SHOW COVERAGE INSIDE:

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**Neoware's Ed Callahan (top) and Microsoft's John Frederiksen battle at Network World's Thin-Client Face-off.**  
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PHOTOS: JEFF SCHIED



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our competition must be behind —



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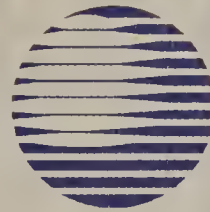
## INTRANET INNOVATOR

Qualcomm's Steve Larbig says his company's intranet has exceeded expectations. Page 39.

ROBERT BURROUGHS

## CALLING ALL CALL CENTERS

AT&T introduces a new service that lets companies' call centers span the globe. Page 33.



## BILL ON BROADWAY

Win98 supporters rally around Microsoft CEO Bill Gates at a New York event. Page 17.



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## NetworkWorld

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## This Week

### Only on Fusion

**N+I.** Miss anything from last week's show? We have a complete news roundup, organized by technology. Plus, if you were at the show, let us know what were the best (and worst) things you saw, in our online N+I forum. **DocFinder: 7041**



**Keeping Current.** What was the really big news out of the show? Fred McClimans gives you his choices for the announcements most likely to make a difference. **DocFinder: 7043**

**Network management.** Read about our annual Network Management Survey on page 47, then come online for a forum on the topic: Why don't things ever seem to get any better? **DocFinder: 7037**

**Tracking sex offenders.** A Mark Gibbs proposal a couple weeks back to set up a Web site for this purpose raised a ruckus. See what others have to say. **DocFinder: 7021**

**Improving Fusion.** What would you like to see added to or changed on the site? Let us know. **DocFinder: 7044**

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# FEATURES

**NETWORK MANAGEMENT SURVEY:** Network World readers give network management tool vendors a C when it comes to meeting their needs for reliability, simplicity and affordability. **Page 47.**

**REVIEW:** Sitara's SpeedServer can turbocharge your Web site, but high price and a number of caveats make us skeptical. **Page 53.**





## News briefs, May 11, 1998

## Last-minute spoiler?

■ GTE Corp.'s last-minute, unsuccessful bid for MCI Communications Corp. has apparently left a sour taste in GTE's mouth. The company last week asked a federal court to nix WorldCom, Inc.'s proposed takeover of MCI — which has been approved by the shareholders of both companies — saying the combo would leave too much control of the Internet in one company's hands.

In an antitrust suit filed in the U.S. District Court for the District of Columbia, GTE argued that MCI WorldCom would control 40% to 60% of Internet traffic in the U.S.

Ahhh, phooey, MCI WorldCom said.

## Java shmava

■ It was to be the highlight event for Java at NetWorld+Interop 98 in Las Vegas, a four-hour session touting the benefits of the programming language to attendees. But Sun Microsystems, Inc. ultimately canceled its Java Business Forum scheduled for last Thursday morning because too few people signed up, according to staffers at the Sun booth on the convention floor.

Officials back at Sun's corporate headquarters in Palo Alto, Calif., were unavailable for comment.

## Thinking outside of the box

■ Upstart long hauler Qwest Communications Corp. has cooked up an interesting way of signing up customers. Qwest — which is building a coast-to-coast fiber backbone — has agreed to pay US WEST, Inc. a fee for customers in US WEST's 14-state region who select Qwest for long-distance services. Billing for local and long-distance charges would be consolidated on one bill.

The Associated Press quoted Qwest President and CEO Joseph Nacchio as saying the deal could make Qwest \$100 million to \$200 million in 1999.

Rivals are crying foul and are threatening to take the companies to court, saying this would essentially let US WEST into the long-distance market in violation of the telecom reform act. If that doesn't slow the process down, the deal could go into effect in June.

## Doin' Domino.Doc

■ Lotus Development Corp. this week is expected to announce an upgrade of its Web-based document management software, Domino.Doc 2.0. The new release moves Domino.Doc beyond basic version control and check-in/check-out capabilities to encompass additional aspects of a document's life cycle, such as review, approval, publishing and archival.

Scheduled to ship next month, Domino.Doc 2.0 pricing starts at \$9,500 for up to four servers and a \$19 per-user client fee.

## ATM dead? Don't tell Bay

■ Bay Networks, Inc. is talking with NEC Corp. about acquiring NEC's enterprise ATM switch product line, said Joe Kennedy, vice president and general manager of Bay's switching products division. Bay currently resells three of NEC's switches — which scale from 2.5G to 10G bit/sec — as the Centillion 1000 line.



Bay's Kennedy

## Alcatel switch talks ATM, Fast/Gigabit Ethernet

■ Alcatel Data Networks, Inc. last week introduced the Alcatel 1100LSS 210 10/100M bit/sec enterprise Ethernet switch. The switch supports ATM, Fast Ethernet and Gigabit Ethernet uplinks, and LAN Emulation, multicasting and directory-enabled services. The 1100LSS comes in a three-, five- or nine-slot chassis and can support 16 to 96 users.

Pricing ranges from \$70 per port to \$150 per port, depending on whether they are fitted with 10M bit/sec or 10/100M bit/sec Ethernet cards. They are available now.

For more information, contact Alcatel at (703)724-2000.

## N+I show-goers want more from VPNs

*Vendors pulling together the pieces of the ideal VPN box.*



By Tim Greene  
Las Vegas

Virtual private network gear caught the eye of attendees at NetWorld+Interop 98 last week, most of who seemed interested in the wealth of features being added to heighten VPN security and simplify management.

Firewall vendors at the show were teaming with encryption specialists and hardware makers to give users all-in-one VPN products that let employees and business partners enter the corporate network via the Internet while keeping everyone else out.

But these vendor relationships, in many cases, are still solidifying, meaning many players are ready to detail product roadmaps but are incapable of delivering the systems users need.

"There are lots of things I like, but I don't see them all in any one product," said a security expert for the U.S. Department of Defense, who was combing the show for VPN gear that meets military security standards.

VPN vendors recognize the problem and are joining forces to piece together what is required. For example, Shiva Corp. last week announced a partnership with Entrust Technologies, Inc. to support Entrust's public-key security in

Shiva's LanRover VPN offerings, adding digital certificate authorization to the products.

And Cisco Systems, Inc. is working closely with Red Creek Communications, Inc. to incorporate Red Creek's encryption gear. Cisco last week invested \$6 million in Red Creek.

"I like the idea of all these products in one solution, but I worry that they become a single point of failure," said Tracy Page, a systems engineer with

and a half. I want to see what the [testing] experts say."

Meanwhile, vendors are incrementally beefing up existing products. Red Creek was showing in its booth the Ravelin 100, a VPN product that can process packets at 100M bit/sec. It is designed to encrypt and decrypt a full T-3's worth of Internet traffic. Ravelin 100 will be available by the fourth quarter and will cost \$11,500.

Watchguard Technologies, Inc. used the show to announce Firebox II, a revamped version of its Firebox 100, which includes the ability to remotely configure the box and update software. It will ship at the end of June and will cost \$4,995. Global Security Manager software to manage a network of Fireboxes costs \$1,495.

Toshiba Corp. was showing Network CryptoGate software for establishing VPNs among Windows 95 or NT clients and Windows NT or Sun Microsystems, Inc. Solaris servers.

Software-based VPNs are a concern to Kevin Duffey, senior technical adviser for Reliacom, because they may introduce latency. He is working on creating a VPN that will carry voice over the Internet, and voice quality is tenuous enough already without adding another component that could slow things down and further degrade quality. ■

## VPN wish list

What customers at NetWorld+Interop 98 want in virtual private network equipment:

- Ease of managing user authentication and access rights
- Interoperability among vendors' gear to ease network access by business partners
- Strong encryption

Reliacom LLC, a systems integrator in Washington, D.C. attending the show. "If one part of the solution goes down, does the whole box go down? Then you have an enterprise network with no way in and no way out."

"VPNs are where intranets were two years ago," said showgoer Jody Cohn, a LAN/WAN administrator for Weider Publications, Inc. in Woodland Hills, Calif. "Everybody's got to have one. I definitely would give it awhile, more like a year or year

## Netscape makes deals, releases source code

By Andy Eddy

Mountain View, Calif.

Faced with concerns about its ability to swim with the bigger fish, Netscape Communications Corp. is fighting back with a rash of announcements regarding all parts of its business.

Search giant Excite, Inc. last week signed on as a partner for Netscape's Netcenter Web site. Not only will the site offer a co-branded search engine, but the companies will team to add content to Netcenter in the hopes the site will remain a key portal to the Internet.

Netscape will receive an upfront sum of \$70 million from Excite to cover guaranteed traffic throughout the course of the deal. In addition to that, Excite will be selling advertising and

sharing the resulting revenue with Netscape, potentially garnering millions more in revenue for Netscape. Also, Netscape has agreed to a "low single-digit equity" in Excite.

In a separate announcement, Netscape last week disclosed it would publicly release the source code to its Directory SDK (software developer's kit) and Console SDK in the third and fourth quarters, respectively.

The company hopes this will hasten improvements made to its Directory Server and Console offerings, by increasing the developer base working on enhancing the products.

Tim Sloane, director of Internet research for Aberdeen Group, Inc., a consultancy in Boston, said the idea to build a

business plan revolving around source code releases, open standards work and the continuing Netcenter expansion could work well. "I don't know any other portal site that can tie it together like that in the long term," he said. "I'm not saying Netscape has it nailed, but as a vision I find it compelling."

On the legal front, a federal judge last week dismissed the patent-infringement lawsuit Wang Global filed against Netscape and America Online, Inc. (AOL) last fall, which last week became more public (NW, May 4, page 128). The judge stated that Wang's patents, which covered older Videotex technology, didn't apply to Netscape's Navigator browser or AOL's client software. ■



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# Vendors embracing directories as key net technology

By John Cox  
Las Vegas

Several key vendors used NetWorld+Interop 98 last week to unveil news about one of the most critical emerging technologies — directory services.

The announcements foreshadow a more pervasive role for directories — as ever-changing repositories of information about network users, devices and applications, and the relationships among them. Corporate network managers are realizing this information is essential in order to manage fast-growing, fast-changing nets and to deliver applications and data where and when they're needed.

"In the last six months, we've seen an exponential increase in the number of corporate IT groups that are changing the way they look at directories," said Jamie Lewis, president of The Burton Group, an IT advisory firm based in Midvale, Utah.

In effect, these new-style directories act rather like a circus

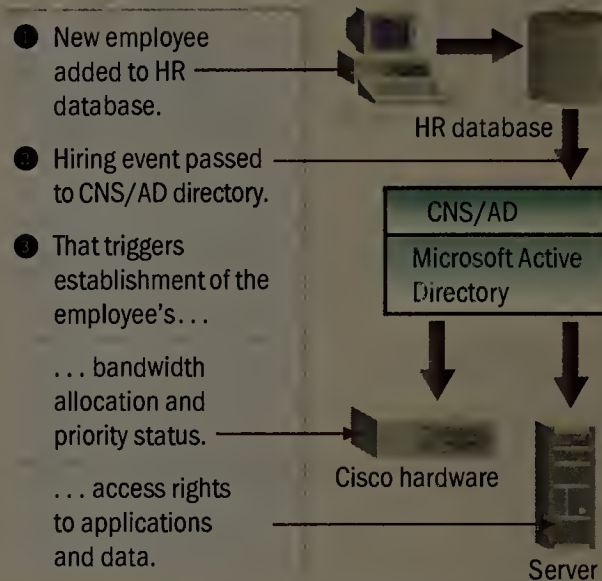
ringmaster: keeping track of different activities, giving priority to one or the other, and coordinating the interactions needed to bring the activities off successfully.

At Interop, Cisco Systems, Inc. unveiled in one-on-one briefings Cisco Networking Services for Active Directory (CNS/AD), which will store information about applications, users, and Cisco routers and switches. The product includes a server program, which will run with Microsoft Active Directory on NT 5.0 and, eventually, on Unix servers. (Cisco is working on porting Active Directory to non-Microsoft computers.)

The other parts of CNS/AD are a software development kit and APIs, which application

## Cisco's directory-based network services

Cisco Networking Services for Active Directory (CNS/AD), entering beta tests in September, uses directory features to create relationships between application events and network configuration, authorization and security.



developers will use to link their applications with the CNS/AD server.

The information captured in CNS/AD can be used to coordi-

nate application events with network services (see graphic).

"When a user logs on to the network, he's authenticated to the directory. Then, his directory profile dictates what applications and data he can access," said Kurt Dahm, senior product manager for Cisco's network and services management business unit. The profile also determines the bandwidth and priority the network infrastructure grants to that users.

CNS/AD will enter beta tests in the fall and is scheduled for release with NT 5.0, possibly early in 1999, Dahm said.

In other Interop directory news, Novell, Inc. issued a press release saying it will send to standards groups a proposal for representing Dynamic Host Configuration Protocol (DHCP) information in a directory. Storing DHCP data this way is the first step in managing IP addresses based on a set of rules, sometimes called policies, which are enforced over the network.

For example, network administrators could create a rule to assign IP addresses based on logon and cancel the address on

logout, said The Burton Group's Lewis. Today IP addresses are time-based: a user has an address for a set time period, whether he is logged on to the net or not.

Novell is submitting the proposal to the Internet Engineering Task Force and the Desktop Management Task Force (DMTF) for development in association with the industry initiative for Directory Enabled Networks (DEN). Novell will release its own implementation of the proposed standard when NetWare 5.0 ships around mid-year.

DEN will create a common framework for organizing directories and defining the information stored within them. Vendors will create products, such as CNS/AD, which conform to DEN. This common framework will make it much easier for these products to share information. DEN is being submitted to the DMTF for consideration as an industry standard.

"DEN gives you the ability to use the directory for the base management of the network infrastructure," said The Burton Group's Lewis. "You'll be able to personalize bandwidth allocation and manage the network based on policies that are defined once and then live in the directory. Via policies, you can manage your network in a much more holistic way." ■

## SNMP

Continued from page 1

opment engineer in HP's OpenView Software Division. "We invested quite a bit in that."

HP plans to endorse an existing SNMPv3 proxy agent from SNMP Research, Inc. that talks SNMPv3 to network devices and Version 1 to OpenView.

IBM, Cisco, Bay Networks, Inc. and BMC Software, Inc. also are not committing to a shipping date for SNMPv3. However, the companies did drop some hints about their product plans. IBM, for instance, aired Version 3-compliant agents and managers, while BMC said its new Patrol application management agents will use Version 3.

But the companies emphasized that last week's demonstration was a technology showcase, not a product announcement.

The only company that did seem firm on its SNMPv3 shipment plans was uninterruptible power supply (UPS) vendor Liebert Corp. Liebert expects to ship SNMPv3-compliant UPSes by year-end, said Kevin Dwinnell, a Liebert product manager.

Dwinnell said Liebert feels fairly comfortable with the management technology, noting that there has been general agreement among vendors about what

should go into Version 3.

During the demonstration, the vendors tried to show secure communications between SNMPv3 managers as well as between managers and agents. Also, the vendors demonstrated Version 3's ability to exchange "get," "set" and "trap" information between Version 1-, 2- and 3-compliant devices.

## SNMPv3 showoffs

Organizations demonstrating the latest version of SNMP at NetWorld+Interop 98:

- Advent Network Management
- Bay Networks
- BMC Software
- Cisco
- HP
- IBM
- Liebert
- SNMP Research
- Tivoli
- University of Quebec, Montreal

While the demonstration was impressive, some observers warned that even after vendors do deliver SNMPv3 products, adopting the technology won't be a snap for customers. Users who need to communicate securely with all of their managed devices — for some net-

works, this number could reach tens or hundreds of thousands of nodes — face the daunting task of replacing all of their Version 1 agents with Version 3 agents, said David Reid, an SNMP Research engineer and coordinator of last week's demonstration.

SNMPv3 and Version 1 agents can communicate get, set and trap information, but security and authentication policies cannot be enforced on Version 1 agents, Reid said. "You have to replace all of the agents," said a user from a large telecommunications equipment manufacturer. "It could be a heavy amount of engineering depending on how you architected the network."

Still, other customers expect moving to SNMPv3 to be easier than it was to move to Version 2. "Version 1 to Version 2 was fairly painful. [Version 3] is a

little more modular, easier to swallow," said Tom Thomas, a senior member of the technical staff at Hill Associates in Colchester, Vt. ■

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# Thin-client vendors lock horns at Network World's Face-off

By John Cox  
Las Vegas

When the dust settled after all the jeers, jabs and sneers, one thing was clear: whatever the promises of

Microsoft-sponsored thin client: a terminal that connects to Windows applications running on a new multiuser version of NT.

The final participant, Neoware Systems, Inc., is trying to

with today's Windows environments or with NCs.

"Will it cost the same or less for Windows terminals to access Microsoft Office [on the server] as it does for PCs to run Office?"

Sun's Vicki Morris, Java product line manager, tried to zero in on the absence of Java in the terminal vendor's plans. "What's your Java support strategy?" she asked Jeff McNaught, senior

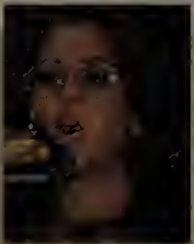
nomically [hard and costly] to manage," Morris countered. "And without using Java, how can you secure your language or handle scaling?"

Without answering the question, Frederiksen said, "We take security very seriously."

In the end, the infighting among thin-client vendors is opening up the market, said panelist Eileen O'Brien, director of the Enterprise NC program at International Data Corp. in Framingham, Mass. "Users should not be forced into making premature decisions," she said.

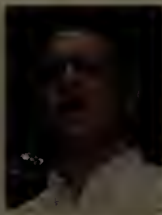
"With Windows terminals and NCs, you now have a choice," she said. "All we're waiting for is Microsoft's pricing."

Online Reporter Sandra Gittlen contributed to this story.



**"We have a scalable back-end architecture. [Microsoft is] limited by Intel."**

Vicki Morris, Sun



**"Our position is NCs won't replace PCs. But they're just fine as terminals."**

John Frederiksen, Microsoft

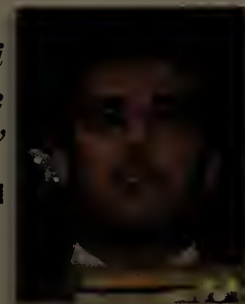


**"We have a 700-unit [network computer] case study, and we found NCs cost significantly less to deploy than PCs."**

Howie Hunger, IBM

**"PC users have the Helsinki Syndrome — a bizarre attachment to their captor."**

Jeff Menz, NCI

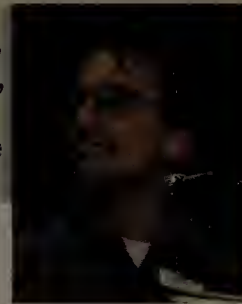


**"Businesses need choice, not a religious war."**

Ed Callahan, Neoware

**"Java makes more sense on the server."**

Jeff McNaught, Wyse



thin clients as an alternative to traditional Wintel PCs, the true benefits will only become clear as users deploy them.

Network World's Thin-Client Face-off at last week's NetWorld+Interop 98 show here pitted a half dozen vendors of network computers (NC) and Windows-based terminals against a panel of experts, each other and the audience.

Thin clients were originally touted as PC alternatives because they eliminate Microsoft Corp.'s Windows operating system on the desktop. Windows, according to thin-client advocates, forces users into a costly cycle of upgrading, maintaining and supporting ever-larger Windows applications and their attendant hardware.

By contrast, thin-client technologies based on the Java programming language offer the appealing idea of compact applications that can be downloaded over a net to a computer running a simple, lightweight operating system.

Among the Face-off participants, IBM and Sun Microsystems, Inc. offer these Java-based devices. A third vendor, Network Computer, Inc. (NCI), is an Oracle Corp. subsidiary charged with creating software that computer builders can use to create NC products.

Microsoft and other Face-off participants — including Wyse Technology, Inc. — back a

straddle both camps with terminal products aimed at accessing multiple server applications but offering some support for Java.

Microsoft's John Frederiksen was called to task by panelist Nicholas Petreley, editor in chief of Webzine *NC World Magazine*, for Microsoft's change of heart regarding thin clients. The company went from dismissing them as "plain dumb" to embracing the concept with the introduction of Windows NT Server 4.0, Terminal Server Edition (TSE).

Frederiksen replied: "Initially, people pitched NCs as a replacement for PCs. Our position is NCs won't replace PCs, but they're fine as terminals accessing host applications."

Petreley criticized the NC vendors for lacking aggressiveness, noting that Microsoft is working with U.S. hotel chains to get Windows terminals installed in rooms used by business travelers. "Why isn't IBM making those kinds of aggressive deals?" he asked.

"We've been doing that in Europe," said IBM's Howie Hunger, director of channels and marketing for the company's network computer division. "What about in the U.S.?" Petreley asked. "We haven't started here yet," Hunger said.

Hunger pressed Frederiksen on TSE pricing, which has not been officially announced. Because of the unknown pricing, it's hard to compare TSE costs

Hunger asked. "It will cost the same," Frederiksen said.

Later, Frederiksen said falling PC prices and new cost-analysis studies are calling into question the validity of the NC model. "What's needed to breathe new life into NCs?" Frederiksen asked. "All it would take is for you to publish your pricing strategy," shot back Jeff Menz, director of product marketing at NCI.

## Extreme

Continued from page 1

features a nonblocking, 64G bit/sec backplane and supports up to 256 10/100M bit/sec switch ports or 32 Gigabit Ethernet ports in eight hot-swappable slots. Two other slots are reserved for management modules.

Until now, Extreme has featured stand-alone and stackable Gigabit Ethernet products as part of its Summit family.

"We are looking for boxes for the computer room that can support large amounts of Gigabit Ethernet. Eight-port devices really won't suffice, so this is closer to our goal," said Lee Damon, senior systems administrator for Qualcomm, Inc. "Without having tested this particular switch, our main concern would be how this box behaves

director and general manager at Wyse. "We're saying run Java on a multiuser NT system, where it makes sense, because you have lots of CPU power and RAM, [instead of on the client]," McNaught said.

Morris asked Frederiksen how Microsoft would scale and secure TSE, especially in extranet applications. Frederiksen's reply promised features such as the ability to cluster the PC servers on which TSE runs.

"PC server farms are astro-

when fully loaded [with 32 Gigabit Ethernet ports]."

According to Mike Banic, product manager at Extreme, the new switch can push 48 million packet/sec and will support the same bandwidth management and priority capabilities as the company's existing Summit switches. For example, switch ports can assign priority to traffic coming from a particular server across the network.

The box will also support Layer 3 switching.

Extreme declined to say how much the switch will cost. Damon said he expects Extreme to charge somewhere between \$1,100 and \$2,000 per port, roughly the range in which other companies have priced Gigabit Ethernet ports.

Extreme will go head-to-head with companies such as 3Com Corp. and Packet Engines, Inc. in the high-end Gigabit Ethernet

market. For instance, 3Com offers the 16-slot CoreBuilder 9000, which sports an 87.5G bit/sec backplane and costs about \$1,249 per Gigabit Ethernet port. Packet Engines just announced its PowerRail family of high-speed routing switches, with prices starting at \$1,750 per Gigabit Ethernet port.

Meanwhile, Extreme's new management software, dubbed Extreme Enterprise Manager, is a Java applet that network managers can use to control and remotely configure groups of Extreme switches. The application will let users configure switches, assign priorities and enforce policies, Banic said. The applet uses SNMP to communicate with the Extreme switches.

The application is expected to ship in the third quarter. The company declined to divulge pricing information.

© Extreme: (408) 342-0999

## CORRECTIONS

The time line that accompanied the feature "Assessing switching" (May 4, page 75) incorrectly identified the company that delivered Giga-Switch, the first FDDI backbone switch. The product was shipped by Digital Equipment Corp.

An article in the May 4 issue gave an incorrect phone number for ARINC. The correct phone number is (888) 822-6738.



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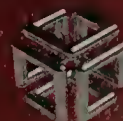


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Circle Reader Service #17



# WorldCom lays out its ISP game plan

*Company sorts its four ISP business units into two new organizations.*

By Denise Pappalardo  
Las Vegas

WorldCom, Inc. last week detailed its plan for integrating the four separate ISP companies it has acquired over the past couple of years.

WorldCom is dividing UUNET Technologies, Inc., CompuServe Network Services (CNS), ANS Communications and GridNet International into two groups. The reorganization, announced here at NetWorld+Interop 98, was previewed in March by John Sidgmore, WorldCom's chief operating officer and UUNET's CEO (NW, March 16, page 31).

WorldCom's first new group,

UUNET WorldCom, is handling basic IP infrastructure services from the four ISPs. These offerings include Internet access, IP fax and IP telephony. Mark Spagnolo, from UUNET, has been named president of this group.

The second group, WorldCom Advanced Networks, is handling value-added services from the four ISPs. These offerings include managed virtual private networks (VPN), managed security, and Web and application hosting services. Peter Van Camp, a CNS executive, has been named president of the group.



Mark Spagnolo and Peter Van Camp are heading up WorldCom's new business groups.

In creating the new organizations, Spagnolo, Van Camp and the company also looked at overlapping services from the four ISPs. "Overall we had 10 different VPN products," Spagnolo said. The VPN services, under WorldCom Advanced

Networks, will be divided into two categories: dial-up and dedicated.

The dial-up VPN umbrella will cover services such as ANS' Sure Remote and UUNET's ExtraLink Remote. The dedicated VPN category includes services such as ANS' Virtual Private Data Network, UUNET's ExtraLink and CNS' frame relay-based VPDN service.

WorldCom also plans to integrate its separate physical networks. By year-end, the company expects to unite UUNET and ANS' IP backbones. WorldCom has already begun some of that work by adding dedicated connections between UUNET and ANS network hubs, Spagnolo said.

WorldCom also plans to migrate most of CNS' ATM network onto WorldCom's ATM backbone by year-end. Today,

AT&T and MCI Communications Corp. provide the majority of CNS' backbone circuits, Van Camp said.

WorldCom plans to keep its dial-up networks separate for now, primarily because ANS' network is predominately used by America Online, Inc. ■

# FORE, Intel team to blend ATM and Ethernet

By Elinor Mills  
Las Vegas

FORE Systems, Inc. and Intel Corp. last week announced plans to integrate Intel's Ethernet products with FORE's ATM products under a joint development, marketing and sales alliance.

The move should help FORE get its message out that the company is focused on more than just ATM.

At the same time, the alliance should help Intel gain more attention from the big network shops that typically use FORE products. The companies announced the alliance here at NetWorld+Interop 98.

The first fruit of the alliance is a new 10/100M bit/sec switch from FORE called the ES-2810. The product is actually a re-labeled version of Intel's existing

Express 510T Switch.

The ES-2810, which allows up to 196 ports per stack, will be available in June and will cost \$3,695. It will come standard with 24 ports of 10/100M bit/sec autosensing Ethernet and two expansion slots for additional 10/100Base-TX or 100Base-FX ports.

Companies will be able to manage the switch using FORE's existing net management software so the device can be monitored as part of an overall ATM and Ethernet network. FORE also plans to add OC-12 (622M bit/sec) connectivity to the switch in the near future.

Intel's first integrated offering will likely be an Express 500 stackable Ethernet switch with a new ATM interface, said Frank Gill, executive vice president at Intel and general manager of the

company's small business and networking group. Intel possibly will release this enhanced product later this year, he said.

## Managers intrigued

Next, the companies will focus on developing switches that boast distributed routing and voice-over-IP services, FORE and Intel executives said.

Net managers looking to blend ATM and Ethernet in their networks were intrigued by the announcement.

"I made a huge investment in ATM and don't want to forklift to Ethernet," said Jim Richardson, a network manager at Amylin Pharmaceuticals, Inc. in San Diego, Calif. "I would like to stick with Bay [Networks, Inc.], but I'd certainly take a look at an Intel/FORE product."

For more information call FORE at (724) 742-4444 or Intel at (408) 987-8080.

*Mills is a correspondent with IDG News Service's San Francisco bureau. Network World Staff Writer Scott Lajoie contributed to this story.*

# Novell advances clustering wares

By Paul McNamara  
Provo, Utah

A pair of server clustering products unveiled last week by Novell, Inc. promise NetWare customers greater peace of mind that their vital network data will always be accessible, company officials claimed.

The first offering, code-named Orion Phase 1, is server-based software that will provide NetWare 4.11 and IntranetWare users with the following features:

- Automatic failover protection.
- Support for two active network servers, negating the need for an inactive server dedicated solely for backup purposes.
- Support for shared storage devices.

No pricing information was released for Orion Phase 1, which is scheduled to ship by the

end of June. Orion Phase 2, which Novell intends to deliver in the fourth quarter, will support NetWare 4.11 and 5.0, and will back up more than two servers simultaneously.

The second server-based clustering product, StandbyServer Many-to-One, is based on technology from Vinca Corp. of Orem, Utah. It allows NetWare customers to protect up to four servers with a single backup machine. An existing version of StandbyServer requires a one-to-one configuration.

StandbyServer Many-to-One is expected to be available later this month for \$6,999 and includes Novell's SnapShot Server, which speeds and automates tape backups.

Novell said the Orion and Standby products will complement each other. ■

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# Old e-mail software a Y2K headache

By Paul McNamara

The Year 2000 problem has users of older e-mail systems caught between a clock and a hard place.

Their dilemma: Do they merely upgrade to a Year 2000-compliant version of their existing legacy e-mail, or do they enter the new millennium with a modern system such as Lotus Notes or Microsoft Exchange.

Experts say the first option is predictable, safe and largely unrewarding in that those choosing it will miss out on advanced messaging features, most notably native Internet support.

The second choice, however, may be hard to accomplish for one simple reason: Organizations may not have enough time to complete an enterprisewide migration before the year 2000 tolls. An e-mail migration can take anywhere from several months to several years.

Standing pat is not an option for users of older, noncompliant versions of products such as cc:Mail from Lotus Development Corp., IBM's OfficeVision/VM and Digital Equipment Corp.'s All-in-1.

"There is no choice; you need to be Year 2000 compliant," said Mike Dunn, manager of network

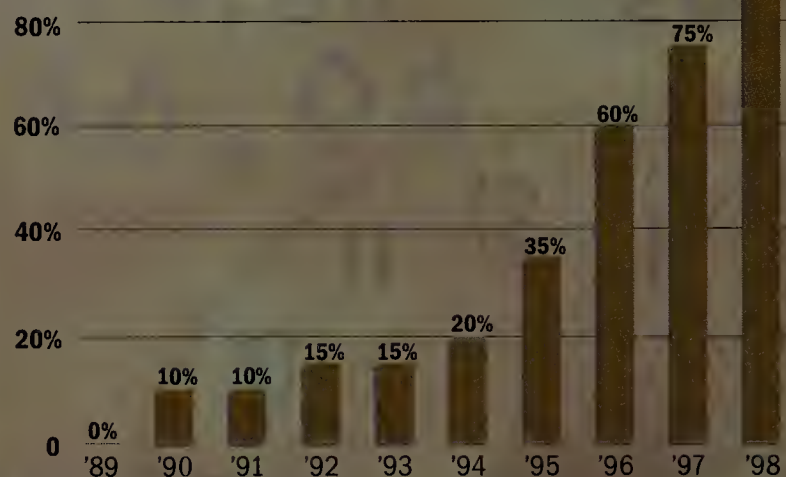
services at Boston University, where an upgrade from a non-compliant to a compliant version of cc:Mail is about two-thirds completed. The university is also actively considering a move to Exchange, Notes or an Internet standards-based messaging system, although Dunn questions whether such a move would

services — said that they were not going to deploy anything new onto their networks from about April of '99 through June or July of year 2000."

With some industry consultants recommending caution, vendors say many customers are going to try to ride out the Year 2000 storm with minimal upgrades. John Slitz, senior vice president of corporate marketing for Novell, Inc., said the phe-

## OLDER E-MAIL, A YEAR 2000 RISK

Probability of Year 2000 compliance for network products based on the year they were manufactured:



make sense *before* the year 2000 has come and gone.

"By the time we make a decision, it may be actually too late to make a rollout in order to comply" with the university's inter-

nomenon encompasses far more than legacy e-mail systems.

"I did a swing through Canada a couple of weeks ago," Slitz said, "and account after account — banks and government agen-

cies — said that they were not going to deploy anything new onto their networks from about April of '99 through June or July of year 2000."

While most experts say e-mail Year 2000 problems will be less than catastrophic, no one is recommending ignoring them.

Year 2000 date confusion in noncompliant systems could affect e-mail headers and incorrectly sort in-boxes, while also corrupting filters and date-based rules. Lotus, for example, warns on its Web site that "messages may be deleted unintentionally, they may not sort correctly, and the dates may not appear correctly," if noncompliant versions of cc:Mail are not replaced.

One industry analyst said legacy e-mail users should be as concerned about lost opportunities as they are about Year 2000 compliance.

"Any company has got to be putting as its top priority how it's going to be dealing with the Internet," said Tim Sloane, an analyst with Aberdeen Group, Inc. in Boston. "And that means coming to grips with [Lightweight Directory Access Protocol] and [Simple Mail Transfer

## A BLIND EYE TO YEAR 2000

Think every IT shop has begun to address its Year 2000 liabilities? Tim Sloane, an analyst with Aberdeen Group, overheard this conversation on a commuter train:

*"You know, some of our senior guys were clearly not thinking when they told management we don't have Year 2000 problems. I've been working on a single project for the past four years and nobody has even asked me to look up and think about whether Year 2000 is a problem. . . . It's going to be a big one."*

Protocol] and the rest."

So does that mean customers should try to beat the year 2000 clock with a full-fledged migration to something state of the art? "I would say jump in with both feet," Sloane said.

There is another option.

"We're seeing a lot of customers doing both [an upgrade and a migration] in parallel," said Martin Smith, manager of product management for integration and coexistence at Lotus. "A lot of our customers are upgrading OfficeVision to a [Year 2000]-compliant version, but at the same time embarking on a project to migrate some of their user base to Notes." ■

# AT&T expands managed bandwidth service

Also at N+I, MCI boosts SLAs, Sprint taps IBM consulting for SNA-to-frame migrations.

**NH** By David Rohde  
Las Vegas  
**COVERAGE**

Despite its recent problems with frame relay outages and a shortage of T-1 access trunks, AT&T last week continued its move to push even more data traffic onto dedicated access lines.

At NetWorld+Interop 98 here, the telecom giant introduced AT&T Managed Bandwidth Service. The service employs Newbridge Networks, Inc. Mainstreet multiplexers and bandwidth managers that enable users to split voice, data and video traffic among multiple channels on the same access pipe and reconfigure them as necessary throughout the day.

AT&T Managed Bandwidth Service is the newest of AT&T's Managed Network Solutions (MNS), all of which add a monthly management fee to a user's straight transport charges.

Under the new service, AT&T

will configure and place one of the Newbridge boxes, up to and including Newbridge's ATM switches, at the customer's site. Then it will configure the customer premises equipment (CPE) to switch certain circuits to different AT&T services on a set schedule, or use Newbridge's Global Services Management Platform to reconfigure the boxes on the fly to meet customer requests.

The service will not be fully automated when it debuts in the second half of this year. Network administrators will have to call AT&T to make reconfiguration requests.

Users will pay \$100 to \$1,000 per site, per month for the service, in addition to their dedicated access line charges, according to Bill Callahan, MNS direc-

tor for AT&T Solutions, the carrier's outsourcing and managed services business unit. Exact charges will be based on aggregate bandwidth, ranging from

56K to 45M bit/sec.

AT&T will put all managed bandwidth access charges on the same bill, though carrier officials concede that doesn't mean the AT&T long-distance transport charges for various voice and data services will now come on a unified bill.

AT&T is not the first carrier to offer managed bandwidth services with rapid reconfiguration based on Newbridge gear. Bell Atlantic Corp. introduced such a service under the Enterprise brand name in the former NYNEX Corp. region several years ago, after waging an epic battle with regulators to gain approval to bundle the CPE with the service (NW, Feb. 6, 1995, page 1).

But only AT&T can extend the service beyond regional calling areas, at least until Bell Atlantic gains long-distance regulatory authority, noted Peter Vanderleek, AT&T managed bandwidth product manager.

AT&T's main rivals used Interop to pounce on the market leader's recent problems by

announcing new packaging and upgrades for key enterprise services.

MCI Communications Corp. rolled together service-level agreements for data offerings into a package called Enterprise Assurance, and took the opportunity to bolster a few of the SLAs.

MCI boosted its frame delivery guarantee for the committed information rate — the portion of frame relay traffic not eligible for discard in case of network congestion — from 99.9% to 99.99%. And the company reduced one-way transit delay across the frame relay cloud from 70 to 60 msec. Most other MCI SLAs remain at previous levels (see graphic).

Sprint Corp., for its part, announced it will resell IBM's network consulting services for users seeking help moving SNA traffic off private lines to frame relay. Sprint officials acknowledged that the optional arrangement will add to the upfront charges to install frame relay, though they did not specify exact prices. ■

## An SLA sampler

Among the service-level agreement measurements in MCI's Enterprise Assurance program:

- Frame relay data delivery:  
99.99% for committed information rate  
99% for discard-eligible traffic
- One-way frame relay transit delay:  
60 msec
- Internet dedicated access and Web hosting availability:  
One day free service for outages over 10 minutes
- Synchronous Optical Network (SONET) Private Line Services availability:  
Half month free service for outages of one to 60 minutes  
Full month free service for outages over 60 minutes



# AT&T WorldNet, Concentric spruce up 'Net services

By Denise Pappalardo  
Las Vegas

ISPs AT&T WorldNet and Concentric Network Corp. last week separately introduced new service options at NetWorld+Interop 98.

AT&T WorldNet launched its Managed Internet Service (MIS) Inverse Multiplexing Service, which is designed to give customers more flexible dedicated Internet access.



AT&T WorldNet's latest MIS service will let business users who today only need a couple dedicated T-1 Internet access connections easily sign up for as many as eight T-1 connections without having to upgrade their access equipment, said Rob Marschall, AT&T WorldNet's MIS director.

The ISP bundles a Larscom, Inc. Orion 4000 inverse multiplexer and Cisco Systems, Inc. router with its dedicated Internet access service. Inverse multiplexing involves the grouping of a customer's T-1 connections onto a single logical channel. AT&T WorldNet will charge \$5,000 per month for two T-1 lines and \$15,000 for eight T-1 lines.

MIS Inverse Multiplexing Service customers can also sign up for a dedicated 45M bit/sec T-3 connection. The inverse multiplexer device gives a customer the ability to divide a T-3 line and dedicate the pieces to different services, Marschall said.

The MIS Inverse Multiplexing Service will be generally available in the third quarter.

Also at the show, Concentric rolled out ConcentricHost Managed Server Services, a Web hosting service that provides customers with dedicated Web servers and 24-7 management and monitoring capabilities.

The service comes with a 99.7% server availability guarantee, which means Concentric promises the network will not be down more than 4.3 minutes per day. If Concentric fails to live up to this service-level agreement (SLA) with a customer, the ISP will knock 25% off the customer's monthly ConcentricHost Managed Server Services fee.

Concentric monitors each dedicated server by pinging it every five minutes, said Connie DeWitt, director of applications hosting services at Concentric. If there is no response from a server, Concentric notifies its customer via e-mail, she said.

An SLA that cuts an ISP more than two hours worth of downtime slack per month may not seem like such a good deal for customers, but many customers just want some sort of guarantee.

Casio, Inc. just moved one of its Web sites to Concentric's new hosting service from another ISP's service. Casio required guaranteed uptime for its

G-Shock Web site, which displays the company's spring and summer line of durable sports watches, said Robert Derby, Internet marketing manager at the Dover, N.J., company.

ConcentricHost Managed Server Services is available in a variety of configurations based on different servers and software.

The offering is available now for

\$1,975 to \$6,400 per month depending on hardware configuration and bandwidth options.

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More connected.™

Win \$10,000 worth of valuable 3Com Ethernet products for your company. You'll definitely make friends in the executive suite when adding 3Com's outstanding 10/100/1000 Ethernet networking products to your network—and nobody has to sign a purchase order!

Want some publicity for that awesome network you implemented? We'll announce the winner of 3Com's Ethernet Business Solution Contest at a PC Expo press conference, and highlight the winning essay on 3Com's web site and on *Network World* Fusion for the world to see.

#### And you get the hero treatment!

Besides winning \$10,000 worth of 3Com Ethernet products for their company, the author of the first place essay will receive \$500 in cash. Plus, four finalists will win \$250 each. And, everyone gets a free 25th Ethernet Anniversary T-shirt just for entering!

## ...and You Get the Presents!

*3Com wants to salute IT heroes who are helping their companies become faster, stronger and more efficient. So tell us how your company is using its 3Com Ethernet-enabled network to create innovative business solutions—and we'll give you the hero treatment!*

**Act Fast!** Entries must be received by May 22nd. All qualified entrants who submit complete entries will receive a commemorative 25th Anniversary of Ethernet T-shirt.

the business goals your 3Com Ethernet Solution achieved for your company, the technology and products you implemented and why you chose it, and the bottom-line benefits of the solution in terms of increased efficiency, reduced costs or overall return on investment for your company.

Submit your entry using the form located at: [www.3com.com/ethernetleader/nw](http://www.3com.com/ethernetleader/nw). All entries must be complete to be considered. Contest valid in US and Canada only.

25  
**Ethernet**

Anniversary

Contest opens April 27, 1998. To enter, visit [www.3com.com/ethernetleader/nw](http://www.3com.com/ethernetleader/nw), complete the on-line entry form and provide an essay in 500 words or less describing your most successful 3Com Ethernet network implementation. Entries must be received by May 22, 1998 at 11:59 PM ET. Entries become the property of Sponsor, and cannot be returned. Limit one entry per person. Winners will be notified by June 20, 1998. Open to legal residents of the 50 United States, and Canada (excluding Quebec), 21 years of age or older, except employees of 3Com, *Network World*, their immediate families, respective affiliates, subsidiaries, agents, advertising agencies and Mariden-Kane, Inc. A panel of 3Com judges will select a group of finalists, with the final judging to be determined by Mariden-Kane, Inc. All decisions are final and binding. Prizes consist of: One (1) Grand Prize of \$10,000.00 in 3Com Ethernet equipment (not for resale) which will be awarded to the business indicated on entry form, and a \$500.00 cash prize to author of the winning essay and Four (4) First Prizes of \$250.00 in cash, for a total approximate retail value of \$11,500.00. The author of each complete entry automatically receives a free 3Com 25th Anniversary of the Ethernet t-shirt. Void where prohibited or restricted by law. To obtain complete official rules, send a self-addressed stamped envelope before May 22, 1998 to: 3Com's Ethernet Business Solution Contest, PO Box 18246, Encino, CA 91416. Complete rules also appear on website address listed above.



# NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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ALL questions must be answered. Incomplete forms will not be processed.

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Form: 9703

## What is the principal business activity at your location? (check one only)

- |   |  |
|---|--|
| <input type="checkbox"/> 01. Manufacturing (other)  | <input type="checkbox"/> 12. Government (Federal/State/Local)                    |
| <input type="checkbox"/> 02. Finance/Banking  | <input type="checkbox"/> 13. Military  |
| <input type="checkbox"/> 03. Insurance/Real Estate/Legal  | <input type="checkbox"/> 14. Aerospace   |
| <input type="checkbox"/> 04. Health Care Services   | <input type="checkbox"/> 15. Consulting (Independent)*                           |
| <input type="checkbox"/> 05. Hospitality/Entertainment/Recreation   | <input type="checkbox"/> 16. Carriers/Interconnects                              |
| <input type="checkbox"/> 06. Media/TV/Cable/Radio/Print   | <input type="checkbox"/> 17. Internet Service Provider (ISP)                     |
| <input type="checkbox"/> 07. Retail/Wholesale Trade/Business Services   | <input type="checkbox"/> 18. Manufacturing (Computer/Communications/OEM)         |
| <input type="checkbox"/> 08. Transportation   | <input type="checkbox"/> 19. Resellers of Computer/Network Products (VARs, VADs) |
| <input type="checkbox"/> 09. Utilities  | <input type="checkbox"/> 20. Systems/Network Integrators*                        |
| <input type="checkbox"/> 10. Education  | <input type="checkbox"/> 21. Distributors (Computer/Communications)*             |
| <input type="checkbox"/> 11. Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry) | <input type="checkbox"/> 22. Other (please specify) _____                        |

\*Please complete form based on largest client.

## What is your job function? (check one only)

### NETWORK IS MANAGEMENT:

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Network Management                     | <input type="checkbox"/> 6. Engineering Management  |
| <input type="checkbox"/> 2. LAN Management                         | <input type="checkbox"/> 7. Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management) |
| <input type="checkbox"/> 3. Datacom/Telecom Management             | <input type="checkbox"/> 8. Consultant (Independent)  |
| <input type="checkbox"/> 4. IS, IT, MIS, CIO, Systems Management   | <input type="checkbox"/> 9. Other (please specify) _____  |
| <input type="checkbox"/> 5. Internet/Intranet Management/Webmaster |   |

## What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code in the box next to each product category. Please complete ALL categories A-H.)

- |                                   |  |  |
|-----------------------------------|--|--|
| 9. \$100 Million or More          | A <input type="checkbox"/> Large Systems (Mainframes/Minis)      | H <input type="checkbox"/> Internet        |
| 0. \$50 Million to \$99.9 Million | B <input type="checkbox"/> Desktops (Micro/Laptops/Workstations) | I <input type="checkbox"/> Intranet        |
| 2. \$25 Million to \$49.9 Million | C <input type="checkbox"/> Servers                               | J <input type="checkbox"/> Remote Access   |
| 3. \$10 to \$24.9 Million         | D <input type="checkbox"/> LANs                                  | K <input type="checkbox"/> Peripherals     |
| 4. \$1 to \$9.9 Million           | E <input type="checkbox"/> WAN Equipment                         | L <input type="checkbox"/> Software        |
| 5. \$100,000 to \$999,999         | F <input type="checkbox"/> Carrier Services                      | M <input type="checkbox"/> Service/Support |
| 6. \$50,000 to \$99,999           | G <input type="checkbox"/> Internetworking                       |  |
| 7. Under \$50,000                 |  |  |
| 8. None of the above              |  |  |

## What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+    2. ☐ 50-99    3. ☐ 20-49    4. ☐ 10-19    5. ☐ 2-9    6. ☐ 1    7. ☐ None

## What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (Check one box in each column)

SERVERS		CLIENTS		LANs	
At Location	Entire Org.	At Location	Entire Org.	At Location	Entire Org.
A	B	C	D	E	F
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

## What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

- |  |   |
|--|---|
| <b>A. Scope</b> (check one only)                 | <b>B. Involvement</b> (check ALL that apply)        |
| 1. <input type="checkbox"/> Corporate/Enterprise | 1. <input type="checkbox"/> Create Network Strategy |
| 2. <input type="checkbox"/> Department           | 2. <input type="checkbox"/> Recommend/Specify       |
| 3. <input type="checkbox"/> None                 | 3. <input type="checkbox"/> Approve                 |
|  | 4. <input type="checkbox"/> Evaluate                |
|  | 5. <input type="checkbox"/> Determine the need      |
|  | 6. <input type="checkbox"/> None                    |

## What is the estimated number of employees at your location/in entire organization? (check one in each section)

- |   |   |
|---|---|
| <b>A. At your location:</b>                 | <b>B. Entire organization:</b>              |
| 1. <input type="checkbox"/> Over 20,000     | 1. <input type="checkbox"/> Over 20,000     |
| 2. <input type="checkbox"/> 10,000 - 19,999 | 2. <input type="checkbox"/> 10,000 - 19,999 |
| 3. <input type="checkbox"/> 5,000 - 9,999   | 3. <input type="checkbox"/> 5,000 - 9,999   |
| 4. <input type="checkbox"/> 2,500 - 4,999   | 4. <input type="checkbox"/> 2,500 - 4,999   |
| 5. <input type="checkbox"/> 1,000 - 2,499   | 5. <input type="checkbox"/> 1,000 - 2,499   |
| 6. <input type="checkbox"/> 500 - 999       | 6. <input type="checkbox"/> 500 - 999       |
| 7. <input type="checkbox"/> 499 or less     | 7. <input type="checkbox"/> 499 or less     |

8

Please indicate the products/services that you are currently involved in purchasing or plan to purchase: (Check ALL that apply)

A. Currently involved in purchasing

B. Plan to purchase

### INTERNET/INTRANET

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 01. | <input type="checkbox"/> B Internet Services                              |
| <input type="checkbox"/> 02.   | <input type="checkbox"/> Firewalls/Security/Encryption                    |
| <input type="checkbox"/> 03.   | <input type="checkbox"/> Internet Web Servers                             |
| <input type="checkbox"/> 04.   | <input type="checkbox"/> Intranet Web Servers                             |
| <input type="checkbox"/> 05.   | <input type="checkbox"/> TCP/IP Software                                  |
| <input type="checkbox"/> 06.   | <input type="checkbox"/> Management/Monitoring Software                   |
| <input type="checkbox"/> 07.   | <input type="checkbox"/> Push Technology                                  |
| <input type="checkbox"/> 08.   | <input type="checkbox"/> Web Browsers                                     |
| <input type="checkbox"/> 09.   | <input type="checkbox"/> Intranet Applications/Groupware                  |
| <input type="checkbox"/> 10.   | <input type="checkbox"/> Search/Retrieval Products (web crawler)          |
| <input type="checkbox"/> 11.   | <input type="checkbox"/> Internet Development Tools (JAVA, ActiveX, etc.) |
| <input type="checkbox"/> 12.   | <input type="checkbox"/> Electronic Commerce Tools                        |
| <input type="checkbox"/> 13.   | <input type="checkbox"/> Internet Telephony                               |

### LOCAL-AREA NETWORKS

- |                                |  |
|--------------------------------|--|
| <input type="checkbox"/> A 14. | <input type="checkbox"/> B Local-Area Networks             |
| <input type="checkbox"/> 15.   | <input type="checkbox"/> Network Operating System Software |
| <input type="checkbox"/> 16.   | <input type="checkbox"/> Servers                           |
| <input type="checkbox"/> 17.   | <input type="checkbox"/> Print Servers                     |
| <input type="checkbox"/> 18.   | <input type="checkbox"/> ATM Switches                      |
| <input type="checkbox"/> 19.   | <input type="checkbox"/> Token-Ring Switches               |
| <input type="checkbox"/> 20.   | <input type="checkbox"/> Ethernet Switches                 |
| <input type="checkbox"/> 21.   | <input type="checkbox"/> Fast Ethernet                     |
| <input type="checkbox"/> 22.   | <input type="checkbox"/> Gigabit Ethernet                  |
| <input type="checkbox"/> 23.   | <input type="checkbox"/> IP Switches                       |
| <input type="checkbox"/> 24.   | <input type="checkbox"/> LAN Storage/Backup                |
| <input type="checkbox"/> 25.   | <input type="checkbox"/> Optical LAN Storage/Backup        |
| <input type="checkbox"/> 26.   | <input type="checkbox"/> Disk LAN Storage/Backup           |
| <input type="checkbox"/> 27.   | <input type="checkbox"/> Tape LAN Storage/Backup           |
| <input type="checkbox"/> 28.   | <input type="checkbox"/> RAID LAN Storage/Backup           |
| <input type="checkbox"/> 29.   | <input type="checkbox"/> Network Test/Diagnostic Tools     |
| <input type="checkbox"/> 30.   | <input type="checkbox"/> Cables, Connectors, Baluns        |
| <input type="checkbox"/> 31.   | <input type="checkbox"/> UPS                               |
| <input type="checkbox"/> 32.   | <input type="checkbox"/> Network Interface Cards           |
| <input type="checkbox"/> 33.   | <input type="checkbox"/> SNMP Network Management           |

### INTERNETWORKING

- |                                |  |
|--------------------------------|--|
| <input type="checkbox"/> A 34. | <input type="checkbox"/> B Routers               |
| <input type="checkbox"/> 35.   | <input type="checkbox"/> Hubs                    |
| <input type="checkbox"/> 36.   | <input type="checkbox"/> Intelligent Hubs        |
| <input type="checkbox"/> 37.   | <input type="checkbox"/> Stackable Hubs          |
| <input type="checkbox"/> 38.   | <input type="checkbox"/> Bridge/Router           |
| <input type="checkbox"/> 39.   | <input type="checkbox"/> Bridges                 |
| <input type="checkbox"/> 40.   | <input type="checkbox"/> Gateways                |
| <input type="checkbox"/> 41.   | <input type="checkbox"/> Concentrators/Repeaters |

### COMPUTERS/PERIPHERALS

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 42. | <input type="checkbox"/> B Network Computers                    |
| <input type="checkbox"/> 43.   | <input type="checkbox"/> Laptops/Notebooks/Sub-Notebooks        |
| <input type="checkbox"/> 44.   | <input type="checkbox"/> Micros/PCs                             |
| <input type="checkbox"/> 45.   | <input type="checkbox"/> Minis                                  |
| <input type="checkbox"/> 46.   | <input type="checkbox"/> Mainframes                             |
| <input type="checkbox"/> 47.   | <input type="checkbox"/> Workstations                           |
| <input type="checkbox"/> 48.   | <input type="checkbox"/> Printers/Network Printers              |
| <input type="checkbox"/> 49.   | <input type="checkbox"/> CD-ROM                                 |
| <input type="checkbox"/> 50.   | <input type="checkbox"/> Fax/Modem Boards                       |
| <input type="checkbox"/> 51.   | <input type="checkbox"/> Graphics/Multimedia/Audio/Video Boards |
| <input type="checkbox"/> 52.   | <input type="checkbox"/> Memory/Chips/Boards/Cards              |

### REMOTE/WIRELESS COMPUTING

- |                                |  |
|--------------------------------|--|
| <input type="checkbox"/> A 53. | <input type="checkbox"/> B Remote Access Products      |
| <input type="checkbox"/> 54.   | <input type="checkbox"/> Remote Access Services        |
| <input type="checkbox"/> 55.   | <input type="checkbox"/> PDAs                          |
| <input type="checkbox"/> 56.   | <input type="checkbox"/> PCMCIA Devices                |
| <input type="checkbox"/> 57.   | <input type="checkbox"/> Wireless Data Services        |
| <input type="checkbox"/> 58.   | <input type="checkbox"/> Wireless Data Equipment       |
| <input type="checkbox"/> 59.   | <input type="checkbox"/> Cellular Equipment & Services |
- ### SOFTWARE/APPLICATIONS
- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 60. | <input type="checkbox"/> B Network Management                     |
| <input type="checkbox"/> 61.   | <input type="checkbox"/> Systems Management                       |
| <input type="checkbox"/> 62.   | <input type="checkbox"/> Security                                 |
| <input type="checkbox"/> 63.   | <input type="checkbox"/> Communications Software                  |
| <input type="checkbox"/> 64.   | <input type="checkbox"/> Terminal Emulation                       |
| <input type="checkbox"/> 65.   | <input type="checkbox"/> Operating Systems                        |
| <input type="checkbox"/> 66.   | <input type="checkbox"/> Applications Development Tools           |
| <input type="checkbox"/> 67.   | <input type="checkbox"/> Database Management/RDBMS                |
| <input type="checkbox"/> 68.   | <input type="checkbox"/> Groupware                                |
| <input type="checkbox"/> 69.   | <input type="checkbox"/> Workflow                                 |
| <input type="checkbox"/> 70.   | <input type="checkbox"/> EDI                                      |
| <input type="checkbox"/> 71.   | <input type="checkbox"/> E-mail                                   |
| <input type="checkbox"/> 72.   | <input type="checkbox"/> Desktop Video Conferencing               |
| <input type="checkbox"/> 73.   | <input type="checkbox"/> Imaging                                  |
| <input type="checkbox"/> 74.   | <input type="checkbox"/> Suites/Server Suites (Back Office, etc.) |
| <input type="checkbox"/> 75.   | <input type="checkbox"/> Middleware                               |
| <input type="checkbox"/> 76.   | <input type="checkbox"/> Document Management                      |
| <input type="checkbox"/> 77.   | <input type="checkbox"/> Site Metering Tools                      |
| <input type="checkbox"/> 78.   | <input type="checkbox"/> Computer Telephony Integration (CTI)     |
| <input type="checkbox"/> 79.   | <input type="checkbox"/> Data Warehousing                         |

### WIDE-AREA NETWORK EQUIPMENT & SERVICES

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 80. | <input type="checkbox"/> B Modems                                 |
| <input type="checkbox"/> 81.   | <input type="checkbox"/> Asynchronous Transfer Mode (ATM)         |
| <input type="checkbox"/> 82.   | <input type="checkbox"/> Frame Relay Equipment/Services           |
| <input type="checkbox"/> 83.   | <input type="checkbox"/> ISDN Equipment & Services                |
| <input type="checkbox"/> 84.   | <input type="checkbox"/> FT-1/T-1/T-3 Multiplexers/Services       |
| <input type="checkbox"/> 85.   | <input type="checkbox"/> DSL Services/Products                    |
| <input type="checkbox"/> 86.   | <input type="checkbox"/> SONET                                    |
| <input type="checkbox"/> 87.   | <input type="checkbox"/> Inverse Multiplexers                     |
| <input type="checkbox"/> 88.   | <input type="checkbox"/> SMDS                                     |
| <input type="checkbox"/> 89.   | <input type="checkbox"/> Diagnostic/Test Equipment                |
| <input type="checkbox"/> 90.   | <input type="checkbox"/> DSU/CSU                                  |
| <input type="checkbox"/> 91.   | <input type="checkbox"/> VSAT/Satellite                           |
| <input type="checkbox"/> 92.   | <input type="checkbox"/> PBXs                                     |
| <input type="checkbox"/> 93.   | <input type="checkbox"/> Voice Mail/Response                      |
| <input type="checkbox"/> 94.   | <input type="checkbox"/> Videoconferencing                        |
| <input type="checkbox"/> 95.   | <input type="checkbox"/> Leased Lines                             |
| <input type="checkbox"/> 96.   | <input type="checkbox"/> Switched Data                            |
| <input type="checkbox"/> 97.   | <input type="checkbox"/> Virtual Networks                         |
| <input type="checkbox"/> 98.   | <input type="checkbox"/> Outsourcing/Systems Integration Services |
| <input type="checkbox"/> 99.   | <input type="checkbox"/> Education/Training Services              |
| <input type="checkbox"/> 00.   | <input type="checkbox"/> None of the above (1 - 99)               |

9

Please indicate the platforms that are currently installed/planned:

(Check ALL that apply)

A. Currently installed

B. Planned for purchase

### NETWORK PROTOCOLS

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 01. | <input type="checkbox"/> B TCP/IP                     |
| <input type="checkbox"/> 02.   | <input type="checkbox"/> IPv6                         |
| <input type="checkbox"/> 03.   | <input type="checkbox"/> SNA                          |
| <input type="checkbox"/> 04.   | <input type="checkbox"/> DECnet                       |
| <input type="checkbox"/> 05.   | <input type="checkbox"/> Novell IPX/SPX               |
| <input type="checkbox"/> 06.   | <input type="checkbox"/> APPC/APPN/LU 6.2             |
| <input type="checkbox"/> 07.   | <input type="checkbox"/> NETBIOS                      |
| <input type="checkbox"/> 08.   | <input type="checkbox"/> AppleTalk                    |
| <input type="checkbox"/> 09.   | <input type="checkbox"/> NFS                          |
| <input type="checkbox"/> 10.   | <input type="checkbox"/> Other (please specify) _____ |

### LAN ENVIRONMENT

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 11. | <input type="checkbox"/> B Gigabit Ethernet                   |
| <input type="checkbox"/> 12.   | <input type="checkbox"/> Switched Ethernet                    |
| <input type="checkbox"/> 13.   | <input type="checkbox"/> Fast Ethernet (100 Megabit Ethernet) |
| <input type="checkbox"/> 14.   | <input type="checkbox"/> Ethernet                             |
| <input type="checkbox"/> 15.   | <input type="checkbox"/> ATM                                  |
| <input type="checkbox"/> 16.   | <input type="checkbox"/> Token Ring/Token Ring Switching      |
| <input type="checkbox"/> 17.   | <input type="checkbox"/> IP Switching                         |
| <input type="checkbox"/> 18.   | <input type="checkbox"/> FDDI                                 |
| <input type="checkbox"/> 19.   | <input type="checkbox"/> 100Base-T                            |
| <input type="checkbox"/> 20.   | <input type="checkbox"/> 10Base-T                             |
| <input type="checkbox"/> 21.   | <input type="checkbox"/> LocalTalk                            |
| <input type="checkbox"/> 22.   | <input type="checkbox"/> Fibre Channel                        |
| <input type="checkbox"/> 23.   | <input type="checkbox"/> 100Vg Any LAN                        |
| <input type="checkbox"/> 24.   | <input type="checkbox"/> Other (please specify) _____         |

### NETWORK OPERATING SYSTEM

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 25. | <input type="checkbox"/> B Windows NT                 |
| <input type="checkbox"/> 26.   | <input type="checkbox"/> Windows NT/Advanced Server   |
| <input type="checkbox"/> 27.   | <input type="checkbox"/> Novell IntranetWare          |
| <input type="checkbox"/> 28.   | <input type="checkbox"/> Novell (NetWare 4.X)         |
| <input type="checkbox"/> 29.   | <input type="checkbox"/> Novell (NetWare 2.X, 3.X)    |
| <input type="checkbox"/> 30.   | <input type="checkbox"/> Microsoft (LAN Manager)      |
| <input type="checkbox"/> 31.   | <input type="checkbox"/> LocalTalk (AppleTalk)        |
| <input type="checkbox"/> 32.   | <input type="checkbox"/> Banyan (VINES)               |
| <input type="checkbox"/> 33.   | <input type="checkbox"/> IBM (LAN Server)             |
| <input type="checkbox"/> 34.   | <input type="checkbox"/> Artisoft (LANtastic)         |
| <input type="checkbox"/> 35.   | <input type="checkbox"/> Other (please specify) _____ |

### COMPUTER OPERATING SYSTEM

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> A 36. | <input type="checkbox"/> B NT Server                  |
| <input type="checkbox"/> 37.   | <input type="checkbox"/> NT Workstation               |
| <input type="checkbox"/> 38.   | <input type="checkbox"/> Unix/Xenix/AIX               |
| <input type="checkbox"/> 39.   | <input type="checkbox"/> Solaris                      |
| <input type="checkbox"/> 40.   | <input type="checkbox"/> Windows                      |
| <input type="checkbox"/> 41.   | <input type="checkbox"/> Windows 95                   |
| <input type="checkbox"/> 42.   | <input type="checkbox"/> Windows 97                   |
| <input type="checkbox"/> 43.   | <input type="checkbox"/> DOS                          |
| <input type="checkbox"/> 44.   | <input type="checkbox"/> OS/2/OS/2 Warp               |
| <input type="checkbox"/> 45.   | <input type="checkbox"/> IBM MVS/VM/VS                |
| <input type="checkbox"/> 46.   | <input type="checkbox"/> Digital VMS                  |
| <input type="checkbox"/> 47.   | <input type="checkbox"/> Macintosh                    |
| <input type="checkbox"/> 48.   | <input type="checkbox"/> Other (please specify) _____ |

☐ 49. ☐ None of the above (1-48)

10

Which of the following Servers/Clients do you have installed/planned at your location? (check ALL that apply in each column)

	A. Servers		B. Clients	
Power PC	<input type="checkbox"/>	<input type="checkbox"/> 01.	<input type="checkbox"/>	486
Power Mac	<input type="checkbox"/>	<input type="checkbox"/> 02.	<input type="checkbox"/>	386
Mac Other	<input type="checkbox"/>	<input type="checkbox"/> 03.	<input type="checkbox"/>	286
Multiprocessor Servers	<input type="checkbox"/>	<input type="checkbox"/> 04.	<input type="checkbox"/>	Risc
PG/PH	<input type="checkbox"/>	<input type="checkbox"/> 05.	<input type="checkbox"/>	Alpha
Pentium/Pentium Pro	<input type="checkbox"/>	<input type="checkbox"/> 06.	<input type="checkbox"/>	Other
			<input type="checkbox"/> 07.	
			<input type="checkbox"/> 08.	
			<input type="checkbox"/> 09.	
			<input type="checkbox"/> 10.	
			<input type="checkbox"/> 11.	
			<input type="checkbox"/> 12.	

11

Which of the following hardware platforms



Please indicate the names and job functions of other individuals at your location to whom you would like us to send a copy of **NetworkWorld**.

Name _____	Job Function _____
Name _____	Job Function _____
Name _____	Job Function _____
Name _____	Job Function _____
Name _____	Job Function _____
Name _____	Job Function _____
Name _____	Job Function _____

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THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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# Local Networks

Covering: LAN Hubs, Switches and Management • Operating Systems • Servers • Thin Clients

## Briefs

■ *Now that Seinfeld is going off the air, what is one to do on Thursday evenings? How about updating your virus protection? Symantec Corp. last week announced that the Symantec AntiVirus Research Center is now conducting weekly virus-definition updates on Thursday nights for users of Norton AntiVirus software. Users can download the Updater program from the company's Web site. Symantec's automated process to respond to submissions about new viruses has allowed the company to increase the frequency of its updates from monthly to weekly.*  
© Symantec: (408) 253-9600

■ **NetCracker Technology** last week announced at **NetWorld+Interop 98** a new network design and presentation software package called **NetCracker Designer**. The software enables administrators to create animated network diagrams in order to simulate how a new network will operate. The product can be used to design integrated voice, data and video networks as well as to determine how a network would respond to a downed route. The software, which runs on Windows NT and Windows 95, costs \$1,995.

© NetCracker: (781) 736-0860

■ **NetManage, Inc.** of Cupertino, Calif., last week announced a new edition of its **Chameleon Unix Link 97 PC-to-Unix connectivity software**. Version 8.0 includes NetManage's SupportNow technology, which enables corporate technical support staffs to view users' screens via the Internet by making a few mouse clicks. NetManage has also included a rewritten Network File System client for Windows NT in Version 8.0. The new version costs \$400 and will be available in June.

© NetManage: (408) 973-7171

## Win98 pep rally stirs support and controversy

By IDG News Service  
New York

Facing the threat of government actions that could delay the release of Windows 98, Microsoft Corp. last week staged a controversial industry rally here to support what the company called its right to deliver innovative products.

On a crowded stage, Microsoft Chairman and CEO Bill Gates, chief executives from several other leading technology vendors and a Harvard University economist discussed what kind of impact a government-forced delay would have on the computer trade, users and the U.S. economy in general. Representatives from more than 30 companies attended the event to show their support for Microsoft.

Though the event was staged to display widespread support

for Microsoft, it also further fueled the controversy surrounding Windows 98, as a trade group and Microsoft competitors decried what they called the software giant's bullying tactics.

The controversy entered the political arena as well.

"It strikes me as curious that it was only after calls from Microsoft that many of these individuals saw fit to sign letters and make public appearances," said Sen. Orrin Hatch (R-Utah). Hatch is chairman of the Senate Judiciary Committee, which in March held a hearing on competition in the high-tech industry.

Even IT companies showing support for Microsoft at the rally

said a delay in the Windows 98 release would not have a huge impact on corporate users.

"Corporations aren't going to be buying up copies of Windows 98 the first day in June when it comes out," said Lenore Michaels, director of marketing

for Micro Modeling Associates, Inc., a New York systems integration firm. Michaels said she attended the event because Microsoft called her company, and it wanted to show support for the fight against government intervention in industry.

Other third-party vendors and consultants voiced a similar goal. "I'm ballistic . . . over the idea of the government interfering in how companies do business," said Sheldon Laube, chief technology officer and executive vice president for U.S. Web Corp., an ISP. But Laube also said a delay in the release of Windows 98 was not the core issue for large companies.

Even Compaq Computer Corp. CEO Eckhard Pfeiffer, when asked how a Windows 98 delay would affect Compaq's corporate customers, stated that it would be "difficult to predict."

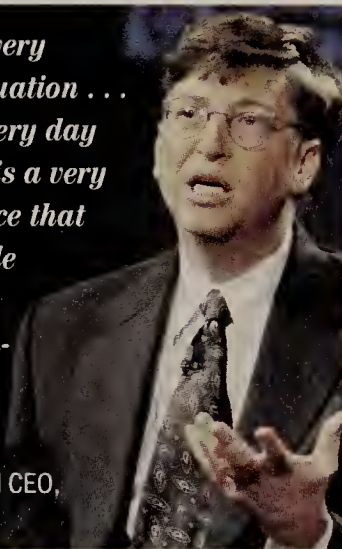
The Microsoft support rally came as speculation swirled that about a dozen state attorneys general and the Department of Justice are considering legal action that could delay or even halt the release of Windows 98.

Gates said Microsoft is taking the possibility of an injunction gravely. "This is a very serious situation . . . we read every day that there is a very good chance that some people might [try to halt Windows 98]. So it is under serious consideration" by Microsoft, he said.

The timely launch to the public of Windows 98, slated for June 25, is important for the "ecosystem" of companies and products that depend on Windows, and also for the U.S. economy, Gates said. ■

*"This is a very serious situation . . . we read every day that there is a very good chance that some people might [try to halt Windows 98]."*

Bill Gates, chairman and CEO, Microsoft



## Windows NT storage manager gets proactive

By John Cox  
Boxborough, Mass.

HighGround Systems, Inc. last week announced a new edition of its storage management package that alerts net adminis-

trators International, Inc.'s Unicenter and Hewlett-Packard Co.'s OpenView.

HighGround's product consists of: data collecting agents, a database and a set of reporting

With Version 2.0, NT administrators can now create groups of disks, disk partitions, computers and end users. Then administrators can set thresholds, such as a maximum amount of disk space per group of end users. When the HighGround software detects a threshold that has been exceeded, the software alerts administrators, who can then take action.

One current Storage Resource Manager 1.0 customer said even with the improvements in Version 2.0, the product has its pluses and minuses.

"It's not yet a full-featured system — it's not a large-scale monitoring system and it's not cross platform," said Michael Zanga, senior Windows NT administrator at Greenwich Capital Markets of Greenwich, Conn. "But it's very easy to set up, it's inexpensive, and every hour you get new information."

The Storage Resource Manager 2.0 tool kit is \$995, reduced from \$3,995 for the earlier version. Agents cost \$399 per NT system. A starter kit is \$495.

© HighGround: (978) 263-5588

SRM - Current Alerts - Microsoft Internet Explorer

Address: <http://legacy40s/storageresourcemanager/alerts/CurrentAlerts.asp>

Storage Resource Manager 2.0

ALERTS REPORT

Help for this page

Current Storage Resource Manager Alerts

Number Of Entries: 16

Time of Alert	Domain Name	Computer Name	Group Name	Resource Type	Alerted Resource	Alert	Old Value	Threshold Value	New Value
3/20/98 2:00:08 PM	ENGINEERING	Dax	Default User Group	User	ENGINEERING/asmth	Quota Exceeded	350MB	400MB	403.25MB
3/20/98 2:00:08 PM	ENGINEERING	Nova	Default Partition Group	Partition	Nova/C:/	Free Space	25MB	20MB	19.15MB
3/20/98 7:42:38 PM	ENGINEERING	Nova	Default Computer Group	Disk	Nova/Disk3/	Grown Defects	22		23

HighGround's Storage Resource Manager 2.0 lets administrators create groups of users or resources and set conditions or thresholds for them.

trators when their Windows NT disk storage systems run into trouble.

Storage Resource Manager 2.0 can alert administrators via the NT Event Log, e-mail or SNMP-based management programs, such as Computer Asso-

ciation and configuration tools. The data collecting agents run on each NT computer being monitored in order to find out which groups are using certain disks as well as other information. The agents then send this information to the database server.

### Get more online:

- Documents related to the government's antitrust investigation
- Microsoft essays on Windows 98
- Netscape CEO Jim Barksdale's testimony before the Senate regarding Microsoft

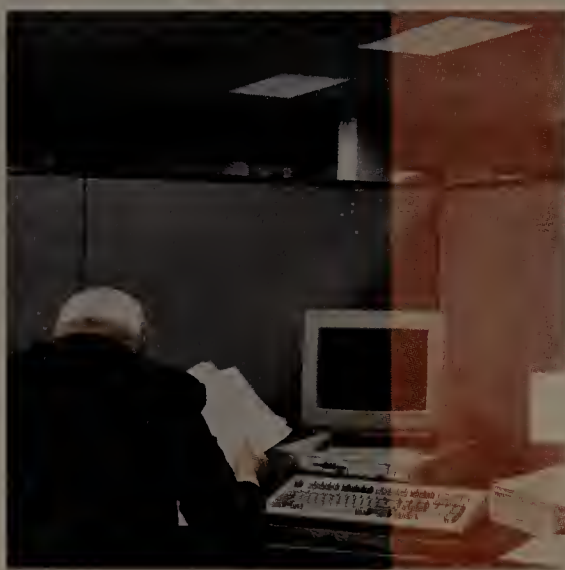


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**It's 1900.**

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**11:59:59, 1999.**

If your users are among the over ten million people who depend on non-Y2K-compliant e-mail systems, they're about to find themselves at the start of the wrong century. Millions of others have already discovered that their systems are behind the times.

Not that it's going to make you feel any better, but there's a reason. Many great systems, Lotus cc:Mail and Microsoft® Mail among them, were designed when e-mail was just a useful utility, and the year 2000 just a blip on the radar. They were never intended to be the critical center of corporate messaging and collaboration that e-mail has become today.

Sure, someone may develop a patch or write some code that will buy you some time to limp into the next century, but that's all you'll be buying. Time. Not capabilities.

So this may be a good time to get your entire company on the same messaging platform. There's a couple of ways to do it.

**Alternative one: Yank it all out by the roots, data and all. Start from scratch. Install a completely new messaging infrastructure for your entire installed base and hope it works. Your basic IT nightmare.**

**Alternative two: Microsoft Exchange Server.**

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Exchange comes with built-in connectors to cc:Mail and Microsoft Mail. To Lotus Notes. To mainframe messaging. It supports every standard Internet protocol. And whatever Exchange connects, it enhances. So while your cc:Mail and Microsoft Mail users still keep their data and get their e-mail, they also begin to communicate and collaborate on a global basis. They get the task management, calendaring, contact management and collaboration tools of the Outlook™ 98 client. They can use Microsoft Office to create work, exchange work, collaborate on work. All on a unified platform.

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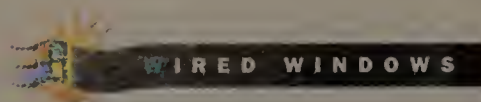
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## A personal lesson in disaster planning

**D**isaster. It's a word we toss around fairly often in the IS world. We talk about disaster planning and

recovery, but we talk about disaster prevention far less frequently. Prevention entails using our tools and knowledge to

discover the weak links in our network chains before they break.

This point about prevention was

brought home to me — forcefully — a couple of weeks ago.

As I boarded a plane for San Diego at the end of April, the only things on my mind were the conference I was headed for and the vacation that would follow it. The furthest thing from my thoughts was that I might get a hernia.

Yet for the past few months, I'd had a suspicion there might have been a recurrence of a hernia I had 15 years ago. But it was spring, there were lots of conferences and trade shows I wanted to attend, so it seemed that putting off a visit to the doctor wouldn't be a major problem.

On Saturday the conference ended, and my wife and I took off for a few days of rest and relaxation in Borrego Springs, Calif. Borrego Springs is surrounded by a desert, which is in turn surrounded by mountains. The only routes to San Diego are county roads.

On Sunday, disaster struck. My hernia was back, and it was strangulated. This results in pain that, I'm told, is equal to that of a woman giving birth.

There are no hospitals in Borrego Springs. After a sleepless, painful night, a grueling two and a half hour drive back to San Diego and an excruciating five-hour flight back to Austin, Texas, I got to see a doctor who was able to relieve the pain and allow me to recover enough so surgery could be scheduled. Last Monday, while many of you enjoyed the Las Vegas desert, I enjoyed the recovery room in an Austin hospital.

The moral of the story is that this whole disaster was preventable. I was aware there was a possible problem, but didn't think disaster was imminent enough to make the necessary repairs.

Don't let this happen to you or your network. Major problems often start as little annoyances. Left unattended to, they grow. Eventually they can amount to a disaster.

Next week, when I'm a bit more comfortable, I'll fill you in on some tools for spotting potential net disasters.

*Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at [wired@vquill.com](mailto:wired@vquill.com).*



**Dave Kearns**

### Get This.

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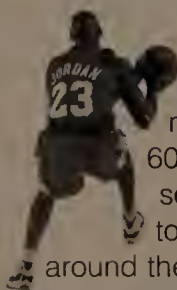
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### Tip of the week

One neat product I wanted to see at NetWorld+Interop 98 was the Cobalt Microserver ([www.cobaltmicro.com](http://www.cobaltmicro.com)). This is a black box computer with no monitor or keyboard, but with the Linux operating system, the Apache Web server and other Internet services preinstalled.





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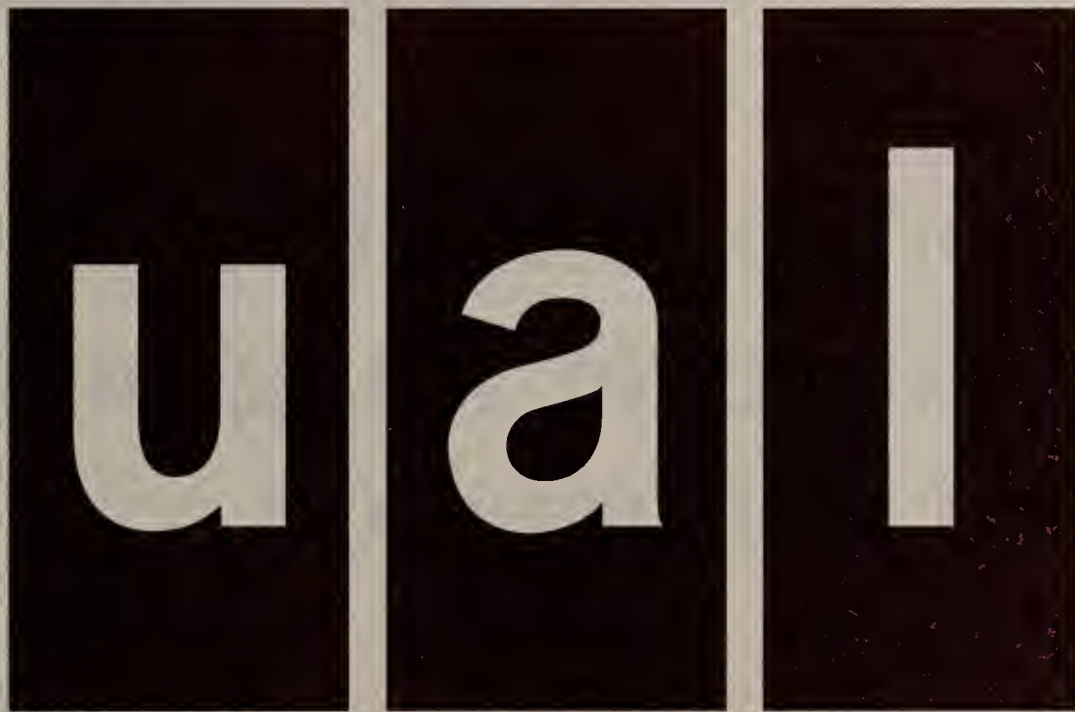




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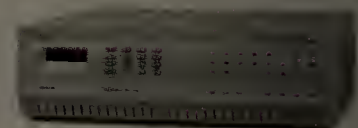
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# Internetworks

**Covering:** TCP/IP • SNA • Network Management  
Muxes, Routers and WAN switches • Remote Access

## Briefs

■ **MultiTech Systems, Inc.** last week added a device with a built-in 56K bit/sec DSU to its line of **Internet Proxy Servers**. The Ethernet-attached MultiTech Proxy Server 2-201 supports a range of Internet client access services. The only software required on workstations is an IP stack and a Web browser. Customers with the dual-port box will be able to dedicate one port to a Web server, for example, and the other to the corporate LAN. Pricing was not available.

© MultiTech: (612) 785-3500

■ **Larscom, Inc.** last week announced its Orion 2000 IMA, an inverse multiplexer that can **blend up to eight T-1 ATM lines into a single connection**. Orion 2000 IMA will be available in September for \$9,950. A four-port version will cost \$7,950.

© Larscom: (408) 941-4000

■ **Hayes Corp.** last week introduced the Century 9000/V.90 Series of **remote access servers featuring integral 56K bit/sec modems**. The servers have a T-1 port and can terminate up to 24 analog modem calls, up to 23 Basic Rate Interface ISDN calls, or a combination of modem and ISDN calls. The Century 9000/V.90 costs \$7,995 and will be available later this year.

© Hayes: (303) 348-5203

■ **OpenConnect Systems, Inc.** last week announced that it will **bundle three previously separate Web-to-host products into one package called the WebConnect Enterprise Server Suite**. The suite will include: Version 4.0 of its WebConnect Pro SNA Access Server, which now supports secure sessions between Web-based clients connecting to mainframes; WebConnect Pro, which transforms tn3270 screens into browser-based graphical user interfaces; and WebConnect Pro, which allows users to access and print mainframe data. The suite will be available later this month and will be priced by configuration.

© OpenConnect (972) 484-5200

## Ascend rolls out quality-of-service tools

*MultiVPN architecture incorporates IP, frame and ATM networks.*

**By Tim Greene**  
Alameda, Calif.

Ascend Communications, Inc. last week at NetWorld+Interop 98 introduced MultiVPN, its strategy for assuring quality of service (QoS) across networks based on Ascend gear.

With MultiVPN, carriers can provision virtual private network (VPN) services with QoS guarantees over infrastructures that consist of everything from switched or dedicated IP to switched frame relay or ATM.

"This is the first major vendor to acknowledge the dependence of VPNs on [QoS]," said Tom Nolle, president of CIMI Corp., a technology assessment firm in Voorhees, N.J.

### Ensures smooth traffic

MultiVPN is supported by Ascend's remote access gear and core frame relay and ATM switches. It is also supported by new software that enables Virtual Private Trunking, Ascend's name for prioritized virtual circuits between core switches. Virtual Private Trunking ensures traffic moves smoothly enough to meet QoS guarantees.

In an effort to enable public WAN services to offer the feel of private net services, Ascend also introduced Virtual IP Routing (VIPR), a scheme for delivering quality assurances over public facilities. VIPR employs Multi-protocol Label Switching (MPLS), a method of tagging IP traffic so it can be moved efficiently over switched infrastructures.

As IP traffic enters the WAN, the first Ascend switch it hits at

the edge of the network looks up the destination address on a routing table stored within the switch.

Using MPLS, the switch marks each packet with a label that other switches in the core of the network use to assign packets to the right virtual private trunks across the WAN.

Each trunk is prioritized to guarantee QoS for IP traffic over the wide area. In a way that masks the frame relay or ATM from the LAN, the switches give priority to delay-sensitive applications. The corporate user benefits by getting quality assurances.

MultiVPN also includes a new feature of Ascend's Navis network management and provisioning software that lets customers provision public WAN services as if those services were supported by a private WAN.

Called CNM Gateway, the

### ASCEND'S VPN STRATEGY

#### The core components of MultiVPN:

##### ● VIPR

An IP-tagging scheme for delivering quality assurances over public network facilities.

##### ● CNM Gateway

Software that lets customers use a Web browser to change their IP, frame relay or ATM WAN services to accommodate things such as spikes in IP bandwidth demands.

##### ● Virtual Private Remote Networking

Ascend's name for dial-up remote access over the Internet supported by authentication and encryption.

software resides in servers within the carrier network and collects data from Ascend switches.

### Do-it-yourself provisioning

With CNM Gateway, carriers can let customers use a Web browser to change their IP, frame relay or ATM WAN services. So during a time when a particular customer application

demands more IP bandwidth, the customer can add extra capacity without calling on the carrier to provision it.

CNM Gateway also gives customers a real-time view of their traffic as it crosses a carrier network.

A slimmed down version of CNM Gateway software called SLA Report can generate service-level agreement reports that customers can access from an SLA Report server via a Web browser.

MultiVPN also includes Virtual Private Remote Networking, which is Ascend's name for dial-up remote access over the Internet supported by authentication and encryption.

VIPR is a new feature of Ascend's IP Navigator software for Ascend B-STDx frame relay/ATM switches and CBX 500 and GX 550 ATM switches.

SLA Report software will be available in June for \$2,000, and CNM Gateway software will be available in July for \$10,000.

© Ascend: (510) 769-6001

## Cisco adds Class to QoS policies

*Acquisition of Israeli-based company to bolster CiscoAssure.*

**By Jim Duffy**  
San Jose, Calif.

Cisco Systems, Inc. last week agreed to acquire Class Data Systems, Inc., an Israeli-based developer of quality-of-service (QoS) software for IP networks, for \$50 million in stock and cash.

The privately held company's policy-based QoS software, called Classifier, allows users to categorize and prioritize network traffic according to business policies, and then allocate network resources based on those priorities or policies.

### New version

Class Data last week announced a new version of Classifier that allows users to implement QoS policies direct-

ly on network devices instead of only on clients or servers. This software, called Policy to Device Control, classifies traffic by network or transport-level parameters — such as IP addresses or TCP/UDP port numbers — as well as by application-specific parameters, such as URLs or application name.

The software configures device-specific QoS parameters and attributes using IP Type of Service precedence bits, Resource Reservation Protocol (RSVP), and Cisco-specific queuing and early packet-detection algorithms.

The software distributes policies using HTTP, SNMP, RSVP, telnet and command-line interfaces.

Policy to Device Control will be available in the third quarter for \$15,000.

The acquisition of Class Data will bolster Cisco's recently announced CiscoAssure policy-based network initiative. Cisco said the Class Data software will enable the company to provide end-to-end QoS.

Class Data, which was founded in 1996, has 34 employees. The company's engineering team will remain in Israel and become part of the Cisco Enterprise line of business.

Class Data President and CEO Arad Naveh and Class Data marketing personnel will be located in San Jose.

The acquisition is expected to be completed in June. ■

**Get more online:**

● VPN primers

● A technical overview of the Ascend gear

● Other VPN news from NetWorld+Interop 98



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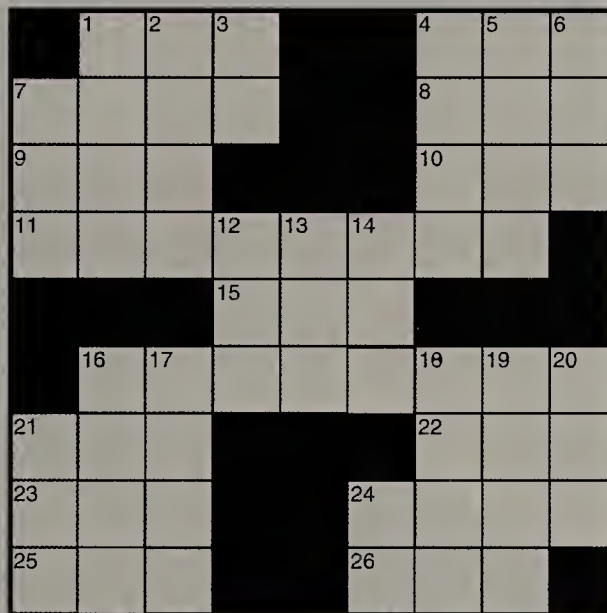
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## ACROSS

1. See logo
4. Curtsy
7. Piece
8. Honest
9. Alias; abbr.
10. Tennis shot
11. Count on
15. Pair
16. NT - not!
21. Mister
22. Server need
23. Little bit
24. Dress edges
25. Stitch
26. Serious software

## DOWN

1. For Pete's \_\_\_\_!
2. Eurasian range
3. Not there; abbr.
4. \_\_\_\_ & chain
5. Clarinet's kin
6. Net subset
7. Golfer's goal
12. Give \_\_\_\_ rest!
13. Hole punch
14. Snake that hugs
16. Trig function
17. Mates
18. \_\_\_\_ rabbit
19. Genie's home
20. Double curve
21. Help
24. This guy



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# Bay extends application prioritization to network edge

By Jim Duffy  
Las Vegas

Bay Networks, Inc. last week unveiled several routing and switching products designed to allow users to support business-critical applications more reliably.

The new products include a frame-based routing switch, ATM routing software and hardware, and Ethernet and token-ring switching modules for Bay's existing modular switches.

Bay said the new gear extends "appli-

cation intelligence" to the edge of enterprise networks by allowing users to categorize and prioritize traffic based on protocol, application, or subnet or host address.

The company is attempting to enable

users to build resilient networks that can optimize application performance and contend with network congestion and disruption.

Key to the initiative is the frame-based routing switch, the Accelar 1050. The fixed-configuration switch is designed to aggregate desktop traffic and deliver application prioritization and access security close to users.

The switch is also intended to increase network performance by accelerating intersubnet traffic to and from server farms.

The Accelar 1050 has 12 10/100M bit/sec autosensing Ethernet ports for server or workstation attachment, and a Gigabit Ethernet uplink for server or backbone switch connectivity. Bay said the switch forwards three million packet/sec with zero packet loss, and that latency is less than 10 microsec.

The Accelar 1050 will ship in July and cost \$7,495. A second model, the Accelar 1051, will include a redundant Gigabit Ethernet connection to increase network availability. That switch will also ship in July at a price of \$8,250.

## MPOA offerings

Bay also unveiled Multi-Protocol over ATM (MPOA) client and server packages for its Centillion and System 5000BH switches and Backbone Node routers. MPOA at the network edge sets up ATM cut-through paths for Layer 3 traffic to bypass overburdened router backbones, Bay said.

MPOA server software is included in Release 12.20 of Bay's BayRS routing software. It is priced at \$7,800. The MPOA client will be available in the fourth quarter and has not yet been priced.

On the hardware side, Bay unwrapped the Model 5782 Multiprotocol Engine for the 5000BH ATM switch. The 5782 is an MPOA server that supports a raft of network and routing protocols, including Routing Information Protocol, Open Shortest Path First, Border Gateway Protocol, IPX, AppleTalk and DECnet IV. It filters and prioritizes traffic based on protocol type and forwards 352,000 packet/sec, Bay said.

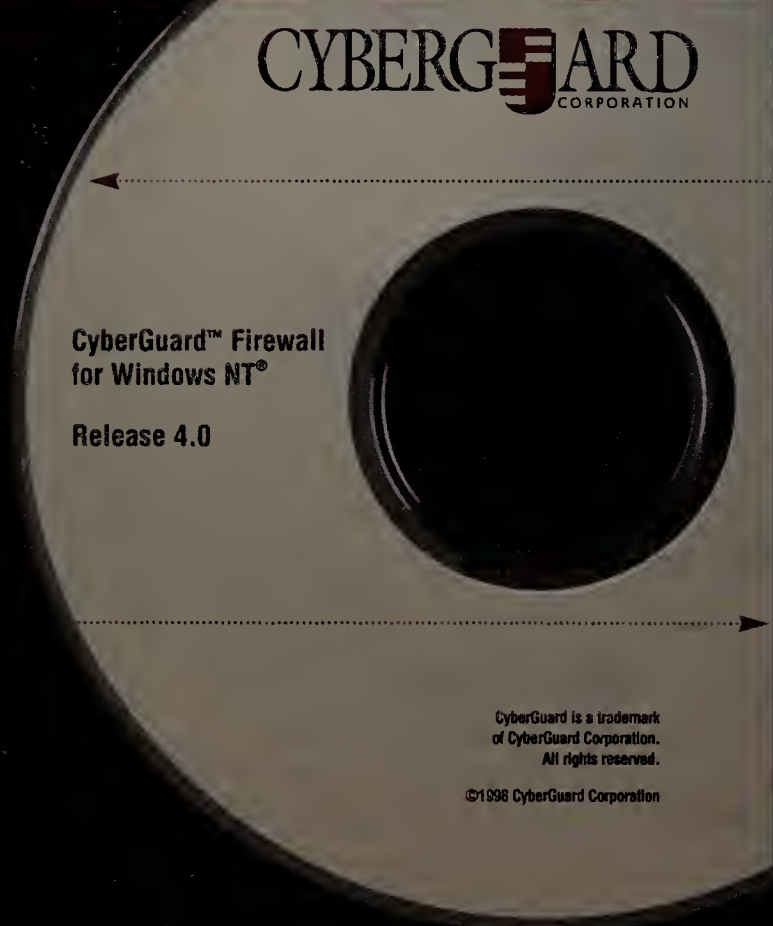
The Model 5782 ranges in price from \$19,995 to \$22,995 and is available now.

Lastly, Bay rolled out new Ethernet and token-ring modules, including the 24-port 10/100M bit/sec autosensing Ethernet boards for the System 5000 and 5000BH, and a 24-port token-ring module for the 5000BH. These modules are designed to allow users to inexpensively add bandwidth to increase network performance.

The 10/100M bit/sec boards cost \$7,195 for the System 5000 and will ship in June. The 10/100M bit/sec modules for the 5000BH cost \$11,995 and will ship in July. The token-ring module costs \$10,995 and will ship in June.

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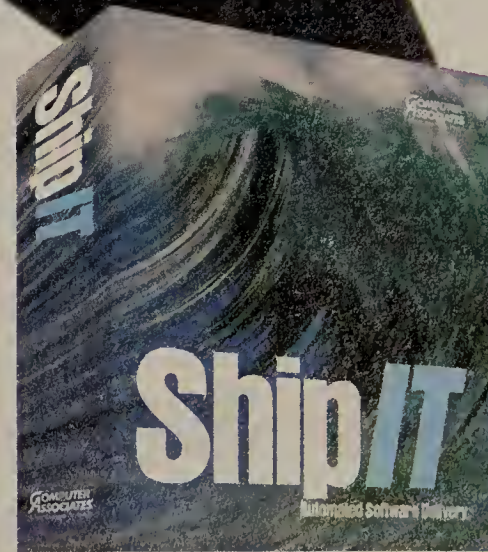
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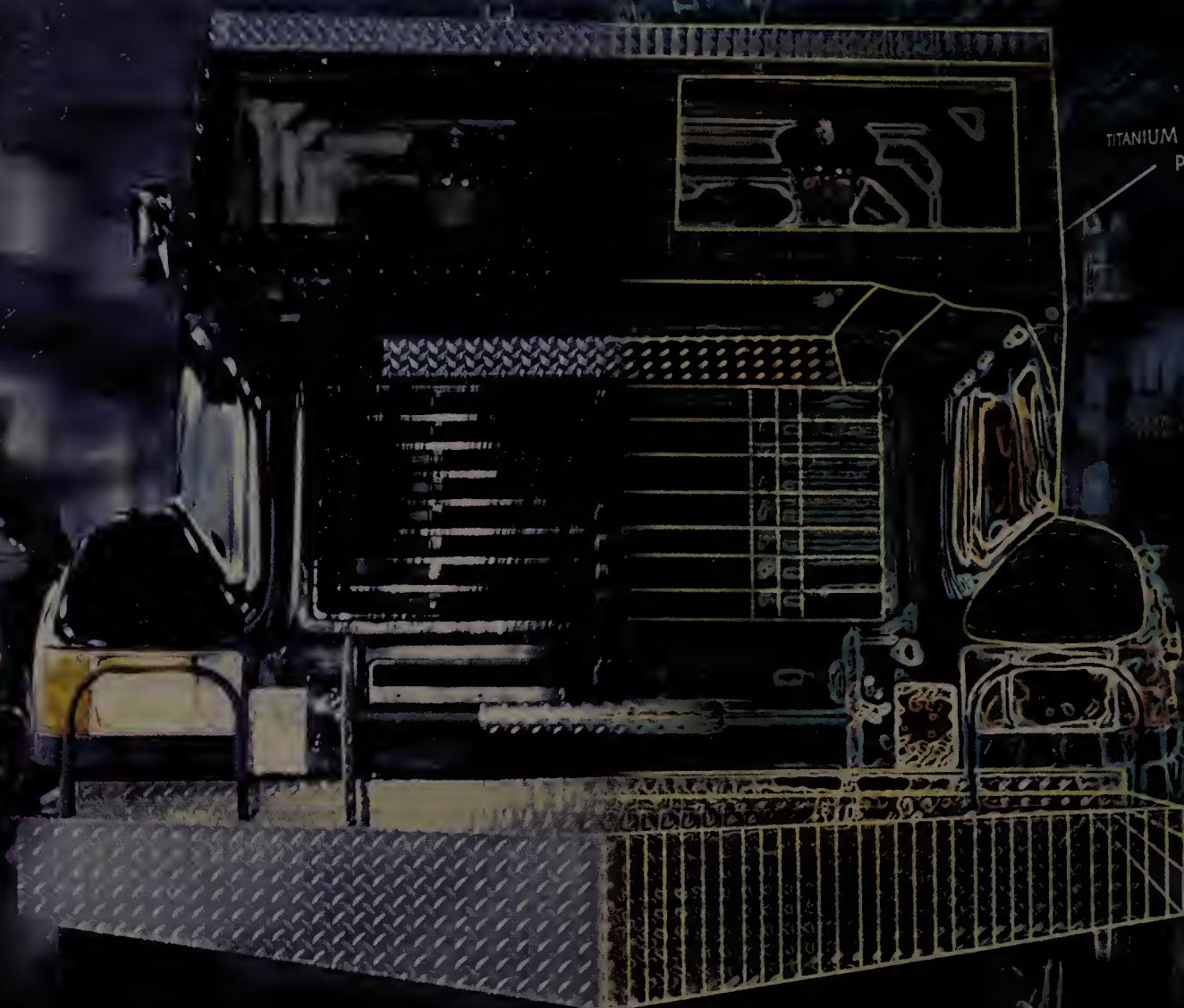


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# Carriers & ISPs

**Covering:** The Internet • Interexchange and Local Carriers  
Wireless • Regulatory Affairs • Voice Equipment

## Briefs

■ **Concentric Networks, Inc.** has established **DS-3 private peering connections** with

*UUNET Technologies, Inc., MCI Communications Corp., Sprint Corp. and America Online, Inc. This move lets 65% of Concentric's Internet access traffic avoid public peering points, such as metropolitan access exchanges and network access points, where bottlenecks are a regular occurrence.*

© Concentric: (408) 342-2800

■ **The New York Public Services Commission (PSC)** recently ordered **Bell Atlantic Corp. to reduce the fees it charges long-distance carriers by \$85 million** for delivering long-distance phone calls to and from its local customers.

*The PSC made it clear it wanted long-distance carriers to pass along the savings to customers. The cut in access charges should make long-distance rates better reflect the actual cost of delivering service, according to the PSC.*

■ **Last week at NetWorld+Interop 98 in Las Vegas, e-Net, Inc. announced its NetConnect audio card** and said it would bundle the card with **IDT Corp.'s Net2Phone Internet telephony software.** The package will let users connect a standard telephone to their PCs to support incoming and outgoing IP telephony.

*The product is targeted at small office/home office users who are typically not offered telephone service rates of less than 10 cents per minute. With NetConnect, customers can use their Internet links to make long-distance and international calls to similarly equipped users for the price of a local call.*

*The package is available now for \$159.*

© e-Net: (301) 601-8777



## AT&T makes call center waves, debuts global service

**By David Rohde**  
*Basking Ridge, N.J.*

AT&T has come up with two new high-end offerings for users seeking to link multiple call centers domestically or around the world.

AT&T Resource Manager and WorldSource Call Center Service are designed to help companies better allocate traffic to the call center agent best equipped to handle the call.

Under AT&T Resource Manager, AT&T will for the first time be able to check the status of agents in multiple call centers before deciding where to route each incoming toll-free call, even those carried by other carriers.

Most call-routing services use preset parameters to move traffic to different locations based on time of day or number dialed. But AT&T Resource Manager is based on the Intelligent Call Router (ICR) from Geotel Communications

Corp. With the ICR, a continually updated database of agent availability and skill sets is checked before each call is routed.

But Geotel built the ICR to accept call queries from AT&T's network as well as MCI Communications Corp., Sprint Corp. and other carriers.

### Call center globe-trotters

**Countries where customers of the WorldSource Call Center Service can place their call centers:**

- |             |               |                  |
|-------------|---------------|------------------|
| ● Australia | ● Ireland     | ● Spain          |
| ● Austria   | ● Italy       | ● Sweden         |
| ● Belgium   | ● Japan       | ● Switzerland    |
| ● Denmark   | ● Luxembourg  | ● United Kingdom |
| ● Finland   | ● Netherlands | ● United States  |
| ● France    | ● Norway      |                  |
| ● Germany   | ● Singapore   |                  |

SOURCE: WORLDPARTNERS CO., MURRAY HILL, N.J.

AT&T will install the ICR on customer premises or host it in an AT&T facility in Denver. The carrier currently offers a proprietary call-routing service called Call Center Transaction Manager, which only works with AT&T toll-free calls.

As a result, AT&T Resource Manager users could split traffic between AT&T and other carriers. The switch to Geotel's platform gives AT&T "an opportunity to go to non-AT&T companies and try to win back business," said Lou Volpe,

Geotel's senior vice president for marketing.

Many AT&T customers have asked for a multicarrier interface, confirmed Brian Bischoff, AT&T Solutions general manager of call center alliance marketing. AT&T Resource Manager will not come cheap: Prices start at \$600,000, Bischoff said.

The other new offering, the WorldSource Call Center Service, takes advantage of existing international partnerships.

The service is a joint offering of AT&T and four members of its WorldPartners Association — Kokusai Denshin Denwa (KDD) of Japan, Singapore Telecom, Telstra of Australia and AT&T-Unisource Communications, which operates throughout Europe.

Users pick one of the five principal sponsoring carriers to act as their agent to establish call centers and contract for toll-

*See AT&T, page 34*

## US WEST making progress on ADSL service

*Will have service installed in half of target cities by end of the month.*

**By Kathleen Ohlson**  
*Denver*

US WEST Communications, Inc. is making good on its promise to roll out a digital subscriber line (DSL) service, but it is taking a little longer than planned.

The carrier had intended to have its MegaBit Services Asymmetric DSL (ADSL) in 40 cities by June (NW, Feb. 2, page 6) but it will only be in half of those cit-

ies by the end of May. The remaining 20 markets are expected to get access to the high-speed service by midyear.

While missing its target, US WEST's ADSL efforts still outpace most other local exchange carriers (LEC), such as Bell South or Bell Atlantic Corp.

MegaBit Services is based on Cisco Systems, Inc.'s Speed-Runner modems that connect

directly to a user's PC and to a traditional telephone jack. Speeds up to 7M bit/sec are supported — some 250 times the speed of dial-up 28.8K bit/sec modems.

The service, in which the data channel is always on, also supports a voice pipe so customers can make and receive voice calls.

US WEST is offering several flavors of the service, including the following:

- **MegaHome**, a service for standard Internet users that provides 256K bit/sec access for approximately \$40 per month.

- **MegaOffice**, a service aimed at telecommuters and small businesses, with 512K bit/sec access for about \$65 per month.

- **MegaBusiness**, a service for business customers who use the Internet a lot. It provides 768K bit/sec access for about \$80 per month.

- **MegaPak** combines Mega-

Home and US West's dial-up Internet service at speeds up to 56K bit/sec for \$59.95 per month.

- **MegaBit** offers 1M to 7M bit/sec access for \$120 to \$840 per month.

- **MegaCentral**, a service for businesses and ISPs that want end-to-end ADSL connections for their customers or employees. It can be installed at the organization's host site.

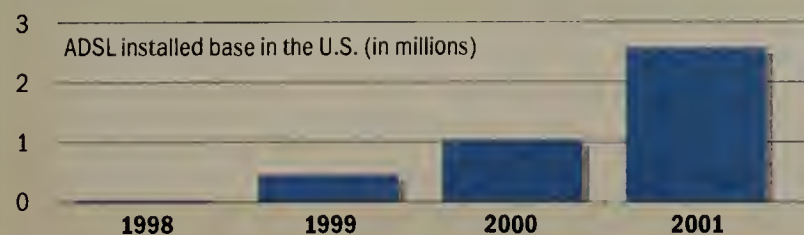
As part of the service, customers will receive a monthly bill that includes all MegaBit Services, Internet access and local phone charges.

© US WEST: (888) 634-2879

*Ohlson is a correspondent with IDG News Service's Boston bureau. Senior Editor Denise Pappalardo contributed to this story.*

### Steady growth in DSL services expected

**Most LECs are cautiously deploying DSL services. But analysts expect more aggressive service availability and continued competitive LEC deployments to spur significant growth in DSL services, with more than two million ADSL lines expected by the year 2001.**



SOURCE: IDC, FRAMINGHAM, MASS.

Get more online:

- Details from US WEST
- An ADSL primer



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## WAN MONITOR

## Money for nothing, bandwidth for free

**E**very time you turn around, it seems some company is telling you it has the "next big thing" in the network bandwidth arena.

Look at some of the hot areas today — Synchronous Optical Network (SONET), hybrid fiber coax, xDSL, dense wave division multiplexing, broadband wireless — just to name a few. It can make your head spin. All this can make it hard to predict where you should spend your bandwidth money.

Of course, the reality is costs increase rapidly with increased bandwidth, maybe not one-to-one but steeply enough to limit access. In the TeleChoice offices, for example, we are limited by cost to T-1 speeds and below, even though it means we join the rest of the Internet on the World Wide Wait.

A commonly overlooked cost of wide-area bandwidth is the transmission gear. It is not uncommon for a packet to pass through as many as 10 optical interfaces on the Internet backbone to get from one city to the next. If the service provider relies on a broadband digital to analog converter for cross-ring restoration, the number of optical interfaces rises to 14.

Using a service provider that relies on bi-line switched ring in its SONET infrastructure? Double the number again

to accommodate the 100% duplication needed for spare capacity. We're now up to 40 optical cards for a two-hop network!

Did we mention that most of the optical interfaces in the carrier network cost more than \$100,000 apiece?

It seems to us that there is a big window of opportunity to do things better. Carriers cannot provide bandwidth for free, but at least they could provide bandwidth for less — especially since most carriers amortize the cost of fiber over a much longer time frame than the transmission gear.

The wide-area vendors are recognizing that great room for improvement exists in the current architectures for transporting data over fiber. AT&T, Bellcore, CIENA, Cisco, Hewlett-Packard, Qwest, Sprint and WorldCom are forming the Optical Internetworking Forum to open the issue to the public. The group's first meeting was held at last week's NetWorld+Interop 98.

How far can carriers and hardware vendors go in improving the current bandwidth cost structures? As one example, an early goal is data-optimized interfaces between internetworking and optical equipment. If you consider that more than half of the optical interfaces pass

traffic no farther than the length of the central office building, you'll see the savings opportunity. If the vendors could come up with a "SONET Lite" interface that used short-reach optics and relaxed synchronization requirements while allowing greater integration between silicon and optics, costs could come tumbling down.

A quick comparison to a \$3,000 Gigabit Ethernet optical interface shows the vast gulf between the pricing of the telco and data network worlds. In fact, new competitive local providers are considering using Gigabit Ethernet interfaces instead of SONET over their local fibers. Bay, 3Com, Cambrian and Packet Engines showed

this technology at Interop. Sounds like an interesting option for your power or cable company, which may already have fiber out to your office.

We haven't even touched on the eventual impacts of tunable lasers and wavelength switching now making their way into prototype products. Within 18 months, leading-edge service providers could be selling you a wavelength instead of a few slices of fiber.

Free bandwidth? No. Cheaper bandwidth? Cross your fingers.

*Briere is president and Heckart is vice president with TeleChoice, Inc., a consultancy in Verona, N.J. They can be reached at dbriere@telechoice.com and checkart@telechoice.com.*



**Daniel Briere and Christine Heckart**

## AT&amp;T

*Continued from page 33*

free phone services in up to 19 countries (see graphic, page 33). Originating calls from more than 100 countries and territories can then be routed to these call centers, based primarily on geographic proximity and language skills.

Trouble tickets are routed online among WorldPartners members via AT&T's Global Operating System, also known as GLOSS, according to Rachelle Rees McCarthy, international network services director for WorldPartners.

AT&T officials said each WorldSource Call Center contract is individually nego-

tiated. But the prices are based on the WorldPartners members' tariffs for international toll-free service, which can be pricey.

For example, AT&T's tariffed rate is \$1.41 per minute for a call from the U.K. to the U.S. on AT&T's Megacom 800 service, which terminates calls over T-1 access lines. Likewise, KDD charges the equivalent of 6 cents to 31 cents for each six-second period for calls originating in other parts of Asia and headed for Japan.

Large users usually get 30% to 40% discounts off those prices when they include Megacom 800 as part of bundled voice and data contracts, according to Carlos Salinas, AT&T's voice services strategic pricing manager. ■

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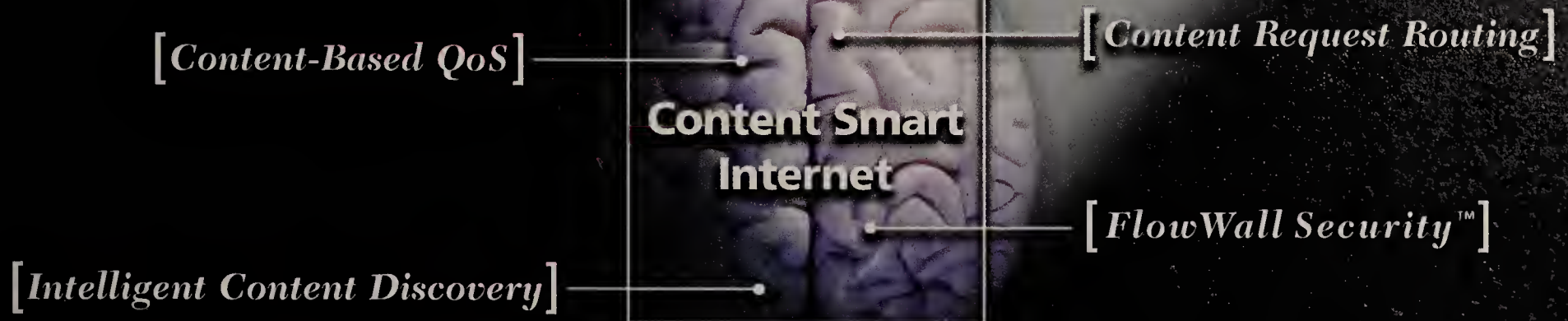
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# Intranet Applications

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## Briefs

■ **WorldTalk Corp.**, of Santa Clara, Calif., has unveiled **WorldSecure Server 3.0**, **firewall and policy management software** that features improved e-mail content filtering technology. WorldTalk said the software can determine the context in which words and phrases are being used, enabling companies to block the exchange of unacceptable messages.

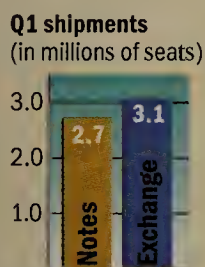
Also included in the upgrade are tools for authenticating net administrators who need to manage e-mail servers remotely. Version 3.0 will ship May 31 and starts at \$1,995 for 50 users.

© WorldTalk: (800) 454-4674

■ For the first time, quarterly sales of **Microsoft Corp.'s Exchange** have surpassed those of **Lotus Development Corp.'s Notes**, according to "Electronic Mail & Messaging Systems," a newsletter based in Washington, D.C. (see chart). However, Notes retains an edge in installed base by a count of 22.5 million to 13.05 million seats, according to the newsletter.

■ **The Association of American Railroads (AAR)** has outsourced its **RAILINC data center**, which handles more than four million electronic data interchange transactions and messages per day, to **GE Information Services, Inc. (GEIS)**. Under the five-year contract, valued between \$80 million and \$100 million, GEIS will move the data center to its Ohio Super Center in Oak Brook, Ill. GEIS will also upgrade RAILINC's EDI software to be Year 2000-compliant and add Internet support.

The AAR is based in Washington, D.C., and has 500 member railroad companies.



## In-Site

### Qualcomm intranet project is paying off

By Paul McNamara  
San Diego

Growing from 2,000 to 8,000 employees over three years is all but certain to give a company document management headaches, as the folks at Qualcomm, Inc. will attest.

When San Diego-based Qualcomm, best known for its wireless phones and Eudora Pro e-mail software, set out to tame its unruly document situation back in 1995, IT managers weighed established offerings from the likes of PC DOCS, Inc. and Documentum, Inc. Qualcomm eventually settled on a little-known Web-based document management and collaboration product called Livelink, from Odesta Corp. Odesta has since been acquired by Open Text Corp., based outside Toronto.

Rapid change ensued for both Qualcomm and Open Text's flagship product, now called Livelink Intranet.

The impact of that change can be seen clearly at Qualcomm. What started as a client/

server document management solution deployed in only a few pockets of the company has evolved into much more, according to Steve Larbig, Qualcomm's manager of business systems. Today, Livelink constitutes the foundation for Qualcomm's increasingly vibrant intranet.

"We decided we were using [Livelink] in completely the wrong way," Larbig said. "While it does have a nice document management component, the real strength is using it as a collaborative tool and a project management tool."

Teams of employees are able to generate and manage access to their own Livelink project Web sites using a browser-based graphical user interface that requires no

knowledge of HTML. There are hundreds of Livelink projects active at any given time at Qual-

comm, including those from teams generating marketing proposals, engineering docu-

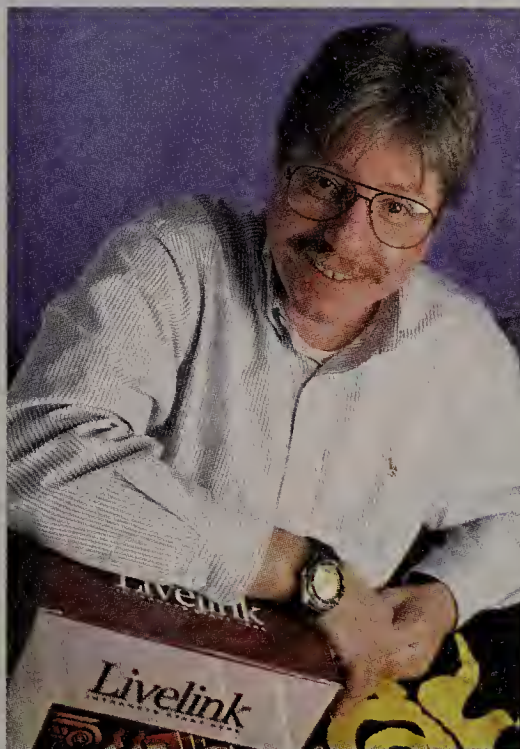
mentation and graphics designs, Larbig said. One Qualcomm engineer used Livelink to create a central clearinghouse of Web sites related to his group's work. "The engineers don't have to bounce around to 20 different Web sites to find what they need to know," Larbig said. "They can just come to one place."

Livelink is server software that provides document management, search, workflow, project scheduling and discussion capabilities. There is no client-side software; rather, end users access Livelink using standard Web browsers. Livelink accesses documents stored in a variety of databases, including those from Oracle Corp., Sybase, Inc. and Microsoft Corp.

Qualcomm's Livelink installation is housed on a single Sun Microsystems, Inc. E450 server running Solaris.

According to Larbig, Livelink is easily customizable to fit the needs of different enterprises and different users, a

See Qualcomm, page 40



Qualcomm's Larbig credits Livelink Intranet for making Web-based collaboration work at his company.

### Sybase shows off data warehouse at user show

By Ellen Messmer  
Washington, D.C.

Sybase, Inc. last week previewed Warehouse Studio, a server-based data warehouse that lets corporations mine content from sources across the enterprise and analyze the information using Web browser-based tools.

Scheduled for second-quarter release on both Unix and Windows NT, Warehouse Studio will combine Sybase's current Adaptive Server database with a central repository as well as Online Analytical Processing and data management tools.

This warehouse package will let users build a central metadata



Sybase's Kertzman

center or distributed datamarts. These will contain information about content stored in databases running on mainframes and servers. Warehouse Studio lets users conduct searches across these resources and combine the content for advanced online queries made through a Web browser.

Sybase displayed Warehouse Studio at the International Sybase Users Conference here.

Federal Express Corp., which has been a key beta site for Warehouse Studio, said it needs the data management tools to more effectively understand the big picture across FedEx package

delivery hub locations.

"Until now, our analysts have been going to multiple sources manually, and the problem is manipulating the information," said Timothy Regan, manager of advanced information development at FedEx.

The hunt for useful information has FedEx analysts combing through its Sybase database as well as through databases from IBM, Oracle Corp. and Informix Software, Inc. By using the Sybase tools to set up a Web-based metadata repository, FedEx can automate the search.

"A lot is at stake in getting this up and running," said Regan, who noted that FedEx is recasting some of its core applications in Java. "Without Sybase, I could not have survived this project."

Such praise was music to the ears of Sybase Chairman and CEO Mitchell Kertzman, who told the hundreds of customers attending the conference that he is determined to lead the financially troubled database vendor back to profitability.

"Become a champion of Sybase in your organization, and we will jump to make the company respond to your needs," he said. ■

#### Get more online:

- ▶ A paper on the strategic uses of data warehouses
- ▶ An overview of Sybase's data warehousing line
- ▶ White papers and product information from other vendors



## NET INSIDER

## Class struggle on the 'Net?

**I** don't understand it. The IETF is working hard to define new technology to bring quality-of-service (QoS) capabilities to the Internet, and people

are starting to complain.

One of the most persistent complaints about the Internet and TCP/IP networks in general is that they do not feature any

useful way to provide for predictable data delivery. Current Internet technology is known as best-effort delivery.

Some wags have noted that for some ISPs this is indistinguishable from worst-effort delivery.

As you might have noted from all of the hype, there is a big push on now for convergence, which, this time around, means putting everything over IP. Or, as Vice President Gore put it the other day, the theme is "IP everywhere."

But many of these hoped for IP services would be essentially unusable on the current Internet. For example, an IP telephony session through some of the overly congested public ISP peering points, such as MAE-East, would generally be unintelligible.

Pundits have used up a lot of ink in recent years lamenting the state of the 'Net and the World Wide Wait, and saying that the Internet will be useless for real work until the 'Net gets some QoS capabilities. At the same time, these pundits have grabbed at anything that might someday provide some chance for a QoS-capable Internet.

There has been a succession of potential magic bullets, but for various reasons, they have not yet been able to provide the desired functions.

The IETF recently started a new Differentiated Services working group to explore another approach to providing QoS functions for IP — an approach that can support something even the size of the Internet ([www.ietf.org/html.charters/diffserv-charter.html](http://www.ietf.org/html.charters/diffserv-charter.html)). This technology is no magic bullet, but it does have considerable promise.

But just as the technology is starting to gel, we are hearing from another group of people — those who seem to want to have everyone get the same bad service and are affronted that someone who is willing to spend a bit more might get better service. For example, the CNN news service last week carried a story titled "Tiered service might lock Internet into class struggle."

You only need QoS controls when there are not enough resources to go around, and QoS controls by definition allocate a scarce resource unfairly. But it is silly indeed to think that we should forgo a system under which users can pay extra to get support for IP telephony and other applications, and instead wait

until there are enough resources for everybody. It is like insisting that everyone must eat at McDonald's because some people might be willing to pay extra to eat at Morton's Steak House instead.

It is sad that some commentators seem to make a living out of crying class struggle whenever they see that having money is better than being poor.

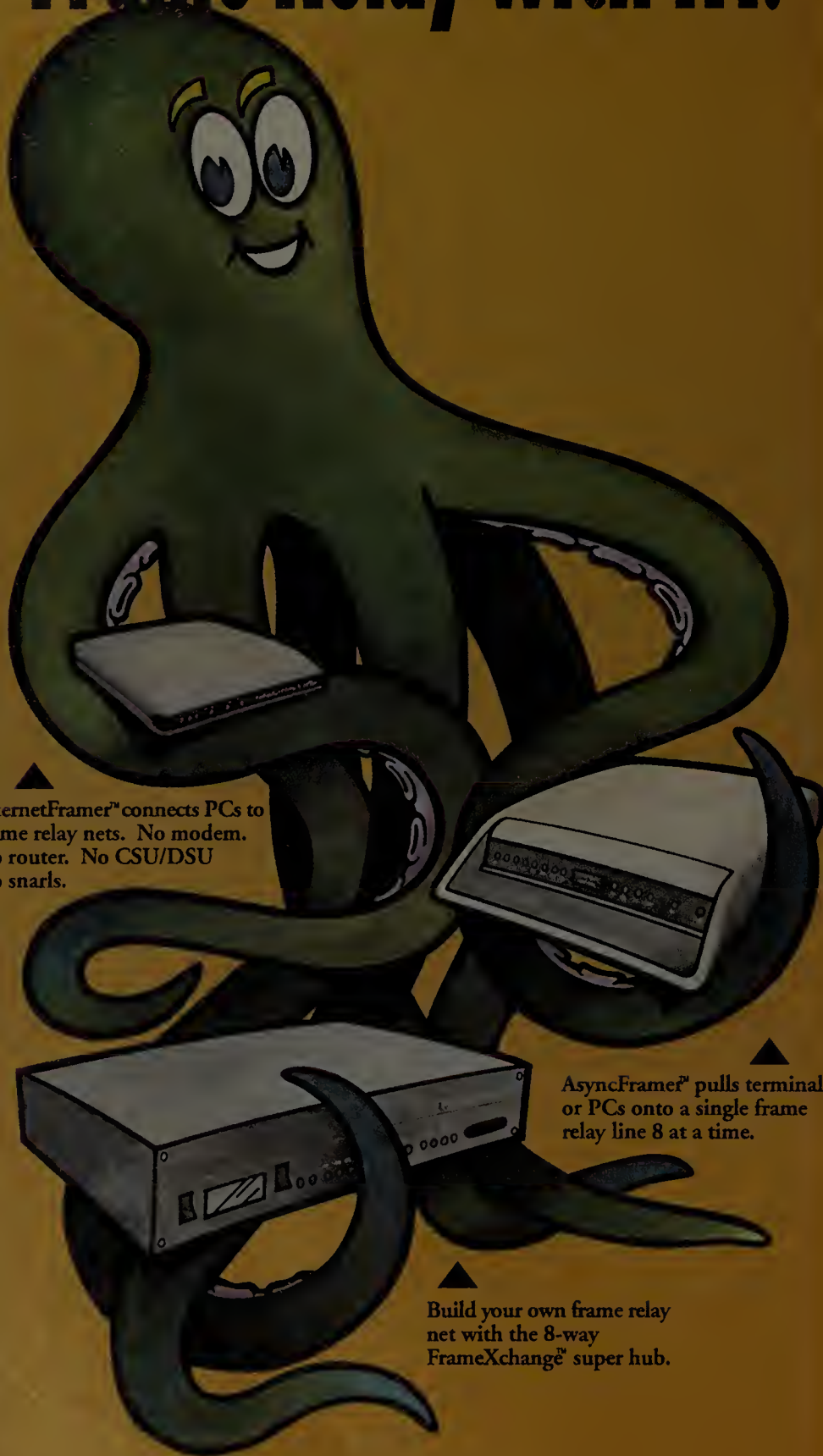
Disclaimer: Class struggle is an all too common epithet to Harvard, but the above are my observations.

*Bradner is a consultant with Harvard University's University Information Systems. He can be reached at [sob@harvard.edu](mailto:sob@harvard.edu).*



Scott Bradner

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## Qualcomm

*Continued from page 39*

quality that is particularly important at Qualcomm. For example, an electronic form developed by Qualcomm for material requisition utilizes Livelihood's document management services to store attachments and allow users to view them.

Praised by industry analysts as a leader among the emerging Web-centric software vendors, Open Text lists Ford Motor Co., Motorola, Inc. and AT&T as Livelihood Intranet customers. Livelihood costs between \$100 and \$850 per user, depending on the size of the site being licensed.

"It's very easy for the [Livelihood] project leader to add people to the group or remove people when they leave the project," Larbig said.

Livelihood could use more sophisticated search capabilities as well as improved features for assigning tasks to multiple employees at the same time, Larbig said. He would also like to see discussion group participants be able to submit comments via e-mail, given that users are accustomed to working from their e-mail clients.

Larbig considers the fact that no client software needs to be installed or maintained to be a big plus.

"We probably could [use a client/

server product], but it would be a lot more difficult, take a lot more effort and be a lot more expensive," he said. "For us at Qualcomm, we see the [World Wide] Web as being a very, very important technology and, in fact, most of the applications that we are developing are Web-based."

Before Qualcomm began setting up Web-based project sites using Livelihood, employees had to ask the IT department for shared server space, a process that could take a week or more, Larbig said. "We're not as dependent on the systems administrators anymore," he added.

While many corporate intranets languish largely unused, Qualcomm's has experienced a steady increase in employee participation, Larbig said. He figures the intranet gets an average of 2,000 separate logons per week.

"Once we started teaching people how to use the system in a recommended fashion, our growth has just been phenomenal," Larbig said. His four-person staff conducts a three-hour training session once a week, but he said users need little or no training to begin using the intranet's features.

The next upgrade of Livelihood Intranet, Version 8, is scheduled to ship this month. A new modular architecture will allow corporate and third-party developers to enhance the software's core services. ■





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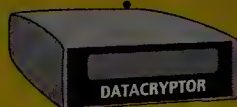
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# Technology Update

Covering: Evolving Technologies and Standards

## NUTTER'S NETWORK HELP DESK

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**Turning on some of the audit features supplied by Novell, Inc. nearly crashed our NetWare 4.X network. Do you know why this would happen, and can you recommend a third-party package that would work better?**

### Via the Internet

First, let's try to figure out why you had a problem with the Novell auditing function. It usually works without problems.

Look at how much free cache memory you've got in the server. If the figure is less than 60%, it could explain the server slowdown. I recommend adding memory.

In addition, obtain the minimum file update list Novell keeps at <http://support.novell.com> and check your server against it. If you need updates, apply them and then turn the auditing function back on. Monitor one device at a time to see if you can reproduce the problem.

The trick to implementing NetWare's auditing function is deciding exactly what you need to watch and tracking just those items. Novell's Auditcon is a good tool for most applications.

However, you might need a standalone package such as BindView Development's BindView NCS. Check BindView's Web site ([www.bindview.com](http://www.bindview.com)) for a package called BindView EMS/ NOSadmin for NetWare.

Tivoli Systems, Inc. also offers an auditing package that might help. Go to [www.tivoli.com](http://www.tivoli.com) and check out Tivoli's Enterprise Software. It appears to be a comprehensive package that would cover just about anything you would need to watch on a network.

If you opt for one of these third-party products, try obtaining demo versions or preferably full-functional packages for testing purposes. Then, if possible, set up a test scenario before turning on the auditing function on the production network again.

## FTP still relevant for large files

By Roger Greene

Why didn't you just FTP it?

If you haven't yet heard that lament, you're either already among the multitudes using File Transfer Protocol to electronically zip around large documents with ease, or your company hasn't figured out how much time, money and aggravation users can save by regularly using this global file-management tool for the Internet age.

FTP is ubiquitous, even if you don't know it's there. Created in the 1970s for use by programs, this workhorse has been quietly plugging away on FTP-enabled Internet servers spread around the globe under the noses of all who use e-mail and a Web browser.

Residing in the Internet par-fait just below the frilly HTTP surface layer, which graphically displays content choices, the FTP layer is where the various directories of data within Web pages can be swiftly scanned and directly accessed. Because HTML displays everything in all its multimedia glory, it's slow. FTP, however, is simply file management: grab a file and download it, fast.

Today, growing numbers of power users, telecommuters and corporate Internet managers are unleashing the protocol's potential by using FTP clients — file transfer software applications designed for users — to minimize time spent online.

In fact, for any business that even touches the Internet, "FTP client" should be spoken in the same breath as "e-mail" and "browser" when describing efficient business desktop needs because you need all three.

A technology that was ahead of its usage curve, FTP is now attracting a critical mass of business users who are finding transfer by e-mail grossly inefficient or impractical when dealing with large documents.

For shuttling small documents, e-mail is perfect. For just searching for something, the Internet or corporate intranets

are ideal vehicles. But for downloading large files, FTP is the best answer. For uploading such files — which a browser can't handle at all — FTP is the only answer.

For example, FTP would ideally be used for efficiently posting new HTML pages onto a company's Web site or sharing graphics-laden CAD files.

FTP's future rests on these client tools being used to access, transfer and manage files —

higher throughput, speeding the transfer process itself.

Also, unlike with Internet surfing, there's more control using an FTP client because it's a direct computer-to-computer connection. Therefore, files are sent to and retrieved from a specific directory, not just an e-mail address.

With many manufacturers routinely FTP-enabling new servers, and with FTP clients now embedded in the familiar

• A customer or vendor — with your permission — can be allowed into a password-protected FTP server directory to securely download a software upgrade.

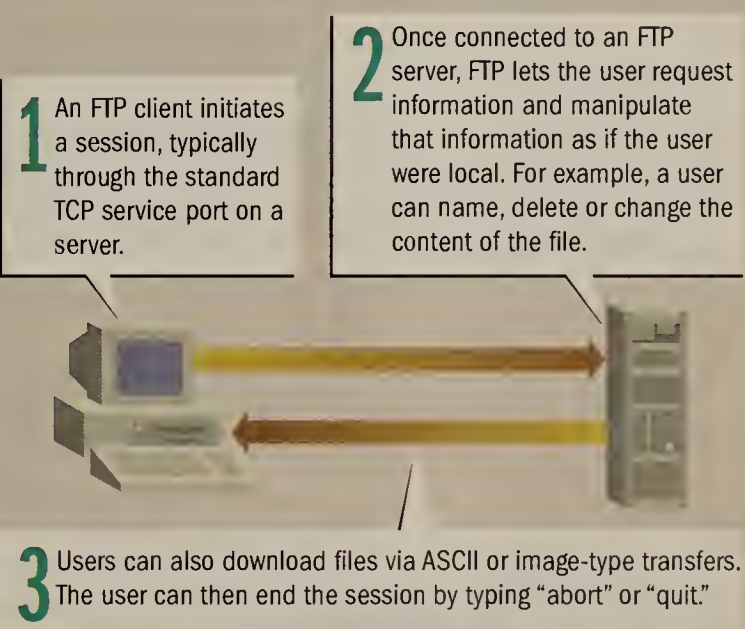
• Your Webmaster can efficiently upload new files from the desktop, where HTML pages are created for the company Web site, to the Web site host.

These are convenient and therefore cost-effective applications of FTP clients in that

## HOW IT WORKS

### Using File Transfer Protocol

FTP is designed to promote the easy sharing of computer files among remote network users regardless of what type of workstation they are using. It helps shield users from variations in file storage systems among multi-vendor hosts. FTP also is designed to transfer data reliably and efficiently over IP backbones.



including sharing software and Web-site building —throughout corporate intranets.

FTP clients are designed specifically for the efficient transfer of files across networks. Many users become acquainted with file transfers using a browser or e-mail file attachments. But these tools simply were never designed for the size, frequency or volume of file transfers that are commonplace today.

Browsers are further limited because most only recognize Unix and NT, unlike FTP clients that recognize a variety of host computer types.

For those performing frequent transfers of large files, an FTP client can save time by allowing automation of the sign-on to an FTP site and the downloading or uploading of files, and by sending files with a

interface of Windows Explorer, FTP is becoming the techie management tool the masses can use and love —without having a clue about how it works.

The ability of an individual to transfer files from the desktop to a place where they are accessible from outside is the mission-critical business benefit of FTP.

Typical FTP applications include:

• Using an FTP server at the office, a worker at home — or anywhere in the world for that matter — can easily scan a backup copy of his desktop hard drive and drag onto his laptop the PowerPoint presentation he meant to finish before the weekend.

• An antivirus program can be made available on the enterprise server to download rapidly for all users linked to the corporate network.

there is no need to add another layer of networking. The bottom line is, with an FTP client you can download or upload files from your desktop to any FTP-enabled server in the world. FTP won't compete with HTTP for razzmatazz looks or full-blown publishing, but it provides efficient file management on a global scale.

File management means you can synchronize files on various servers, edit files and view graphics before downloading. And FTP is simply more reliable than browsers that often fail to complete transfers (read: that crash). FTP is the universal file-management tool.

So next time, just FTP it to me, will you?

*Greene is president of FTP software maker Ipswitch, Inc. He can be reached at (781) 676-5700.*





## Let bygones be bygones

**T**he attorneys general from 13 states are gearing up to launch their own antitrust action against Microsoft. From what we can see of their plans, this motion is shortsighted and, like the Department of Justice antitrust action that preceded it, simply too late.

The time for action has come and gone. The government should have reacted when Microsoft started dumping Internet Explorer on the market in 1995 to slow down Netscape's ascendancy.

At that point, the issue was clearly delineated and easy to understand. Stopping Microsoft from distributing free copies of Internet Explorer would have benefited the industry by giving Netscape a fair chance to build a new market.

Despite pleadings by Netscape and others, the government dilly-dallied, and Microsoft was able to dump enough Internet Explorer in to the market to begin to erode Netscape's advantage.

When the Justice Department finally stumbled into action, Microsoft played it just right, feigning concern while knowing full well that the pending arrival of Windows 98—which has the Internet Explorer functionality bundled in—makes the whole issue moot.

Once the browser is bundled into the core operating system, Microsoft will no longer be dumping product on the market to quash a competitor. It will merely be recognizing the practicality of an advanced

technology and improving its product accordingly.

How can you argue with that? If no patents have been violated, what wrong has been committed? And who wants to stand in the way of product improvement?

Enough is enough. The Justice Department, and now the state attorneys general, should own up to the fact that they blew the timing of their assaults and leave it at that.

Ironically, it would appear some of the attorneys general think they may be able to milk the "Let's beat on Microsoft" public sentiment to benefit their political careers. *The New York Times* reports that all of those involved are elected officials and many are up for re-election.

But if the attorneys general do end up taking Microsoft to court, they are going to find themselves waving the battle flag out there on their own as their army retreats behind them. With as many Microsoft haters as there are out there, few will stand up and argue in favor of taking a step backward. Integrating browser functionality into the operating system will simply make life easier.

The sin was letting Microsoft give away Internet Explorer. But the arrival of Windows 98 makes further pursuit of the company mere folly that is bad for the industry and ultimately bad for the country.

John Dix, editor

jdix@nww.com

*Totally Unplugged • Ira Brodsky*

## An ingenious solution to the Year 2000 problem

**I**'ve discovered a way to alleviate and possibly solve the Year 2000 problem.

By extending the standard day to 48 hours, we can double the time remaining before the dreaded Year 2000 software tsunami barrels in, leaving shattered careers and frozen solitaire games in its wake.

But there's no reason to stop there. Once we've mastered the 48-hour day, we can continue to add 24-hour increments, gradually stretching the standard day to encompass what was once an entire week. That would push the year 2000 back several years, buying time for scientists searching for the ultimate cure.

What's really exciting is the scheme's many extra benefits. If tomorrow's day were as long as today's week, three-day Year 2000 conferences would be reduced to mere half-day seminars. And companies could institute 40-hour workdays, vastly increasing monthly production.

However, since most people cannot stay awake for more than 20 hours, Congress would be forced to pass a law requiring firms with over 50 employees to provide free cots and paid sleep time. Then, if a telemarketer calls offering Year 2000 products and services, you can simply have someone tell them you are taking a nap.

Sure, I realize there are drawbacks to 168-hour days. (Cynics may even argue the cure is worse than the disease.) Only the best-paid network managers could afford to buy 19 meals a day. Vacations would last only two or three days at most. If you are unhappy with your present job and find another, you would still be expected to give two weeks' notice, which would feel like three months by today's reckoning.

But the sad fact is that information technology professionals are going to take all the blame for apocalypse 2000. Service desk clerks across America will tell customers, "Our network has fallen and can't get up." IT professionals will become the target of jokes originally aimed at lawyers. We may even see bumper stickers with slogans like, "Have You Slugged Your IT Professional Today?"

We must act quickly. Each day we let slip through our fingers brings the year 2000 another week closer.

Of course, there are people who will try to dissuade you from

implementing my scheme. Chances are, they work for firms created solely to capitalize on Year 2000 chaos. (Also beware people hawking slide rules and genetically reconstituted carrier pigeons.)

Once we secure more time, we can begin the quest for a final cure to the Year 2000 plague. Some misguided souls believe the only answer is to shut down all computers by 11:59 p.m. on Dec. 31, 1999. That would be a Pyrrhic victory; few IT professionals could survive the transition back to an agrarian economy.

A more promising solution is to transport all computers to just outside the nearest black hole, where immense gravitational forces cause extraordinary time dilation. To an observer back on earth, the computers' clocks would appear to have come to a near-standstill. This would make Oracle's Larry Ellison and Sun's Scott McNealy instant heroes, because there would finally be a legitimate application for network computers (sans internal clocks, of course).

Although the black hole computers would continue racing toward the year 2000, we would not know the evil event actually transpired until a billion years later. Presumably, by then software developers will have conquered the year 2000 and will have their hands full trying to cope with the rapidly approaching year 2,000,000,000.

But the more I think about it, the more I realize my Year 2000 fix has a serious flaw. If we delay the arrival of the year 2000 indefinitely, the Year 2000 industry will have an eternity to sell its wares.

Perhaps there is some way we can program our computers to just keep repeating 1999?

*Brodsky is president of Datacomm Research Co., a Chesterfield, Mo.-based consulting firm. He can be reached at ibrodsky@ix.netcom.com*



MESSAGE

Send letters to [nwnews@nww.com](mailto:nwnews@nww.com) or John Gallant, editor in chief, Network World, 161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.

### Tracking sex offenders

Regarding Mark Gibbs' column "Finding sex offenders: It's our responsibility" (April 13, page 66):

I applaud Gibbs' idea about information technology professionals banding together to build a Web site posting the records of sex offenders. If this isn't freedom of information at its most necessary, I don't know what is.

I am part of a small organization of computer geeks/security specialists that could get involved in this project. We had an ongoing discussion on our e-mail list about the new dangers to our children from our rapidly changing world. It would be great to feel as though we are



# Write once, run anywhere: An impractical ideal

**T**he long-running debate about whether Java or ActiveX will dominate HTML-based Web application development has come to a halt. Java won.

But the victory hasn't brought Java's "write-once, run-anywhere" philosophy any closer to reality. Ask almost any consultant, programmer or independent software vendor, and they will laugh off the notion of write once, run anywhere as an unattainable ideal.

How can this be? Of course we all know how the Java world has Balkanized into increasingly centrifugal camps around Sun, Netscape, Microsoft, Hewlett-Packard and other players. All pledge nominal fealty to the notion of a single set of Java standards.

Yet the fact that no two Java software vendors offer the same set of templates, beans, classes, methods or other development features means that write once, run anywhere, if possible at all, must be addressed through painstaking application planning, design and testing. It cannot be taken for granted.

Another probably more fundamental factor often is overlooked in discussions of cross-platform application development: Java, for all its burgeoning diversity, is only one detail in a complex canvas. Often the best you can do, given limited time and development resources, is optimize an application for a particular target client environment and pray that pages display and components execute reasonably well in other environments.

So you choose an HTML version, a leading Java integrated development environment (IDE) and a target Java virtual machine (JVM), usually the one in Microsoft's Internet Explorer 4.0 or Netscape's Communicator. You also concentrate on application development at the server, not client, level. The World Wide Web or application server does the heavy processing and delivers plain old HTML and GIF documents to thin clients.

What gets lost in this emphasis on cross-platform Web applications is any hope of wowing users with state-of-the-art interactive and multimedia features. You can reach more potential browsers by delivering plain-vanilla, boring, static pages or impress a select few by sending them the latest widgets, bells and whistles.

Or if you're a glutton for punishment and want to make a go of write once, run anywhere without sacrificing state of the art, you can drag yourself through the following drill.

First, write complex, potentially buggy Web template applications that deliver pages and components that display and execute approximately the same way across various platforms.

Test these applications in all potential browser, client and operating environ-

ments before going live. Upgrade the applications continually to incorporate any hot new JVM, just-in-time compiler, browser, markup, component, scripting and database technologies.

Even then, these applications are not truly write once, run anywhere unless they can be compiled and run acceptably on all native platforms. Here's where ActiveX comes back into the picture.

Yes, ActiveX is dead on the Web, but it remains very much alive on the desktop. To the extent that application developers are still writing native applications directly for the Windows environment and not to a browser running under this or any other operating system, ActiveX will remain a strong rival to Java, keeping the latter from achieving the universality its proponents desire.

Most levelheaded IT professionals know that Java-based network computers will not replace or obsolete Windows on the mainstream corporate desktop. By the same token, ActiveX will not stray far beyond its Windows origins to do serious battle with Java in cross-platform computing.

Blurring the boundaries between Java and ActiveX, an increasing number of IDEs let you compile Java code directly to native Windows, and Microsoft has a binding that lets you write ActiveX controls in Java. But what we're looking at here is another serious engineering effort by overworked programmers to support cross-platform applications in a world that still doesn't revolve around Java or the Web.

Nevertheless, ActiveX is clearly on the defensive. For the time being, it will rely on its superior native platform integration to retain the upper hand over Java applications. However, incorporation of a fast JVM into Windows 98 will tip the cross-platform balance in Java's favor. Likewise, Microsoft's decision to emphasize Dynamic HTML for compelling content development is another sign that ActiveX is on the endangered species list.

This proliferation of competing Web application development technologies has doomed write once, run anywhere to the dustbin of yesterday's ideals. It will not be a practical application development strategy until the Java industry shakes out into one rigorously standardized community and Microsoft totally rearchitects Windows around Java.

In other words, don't get your hopes up.

*Kobielus, a contributing editor to Network World, is a senior telecommunications analyst with LCC International, Inc., a McLean, Va.-based network design, engineering and integration firm. He can be reached at (703) 873-2474 or at [kobielus\\_james@lcc.com](mailto:kobielus_james@lcc.com). The opinions expressed are his own.*



doing something to protect our kids.

*Pat McCarthy  
Kalamazoo, Mich.*

I wholeheartedly agree with Mark Gibbs' column on sex offenders. My husband and I are planning to move to Atlanta this summer with our 9-year-old son, and I want to make every effort to protect him. Not only do I plan to contact the local police to research sex offenders in our new neighborhood, but I would be willing to help in Gibbs' effort to track these people to ensure the safety of our children.

*Nancy Cross  
Newark, Del.*

The danger of Mark Gibbs' idea is not that sex offenders will be harassed, but that others will.

I recently read about a database of sex offender addresses that was highly inaccurate. Innocent families who lived at the

wrong address were harassed. Children of mistakenly identified adults were taunted, beaten and ostracized at school.

Mr. Gibbs, have you ever been responsible for the integrity of a large database? How about one where huge numbers of people were responsible for entering the data?

Now how about if those people are unaccountable volunteers? If you're lucky, sloppy mistakes will be the least of your worries. How about volunteers who decide to add the names of people against whom they have vendettas?

I hope Gibbs is ready to get sued when some innocent person's life is ruined.

*Ben Krug  
Assistant vice president*

*First Chicago NBD Corp.  
Chicago*

While I agree with Mark Gibbs' concern regarding sex offenders living unknown in our neighborhoods, I have concerns about letting people have access to information regarding them.

My main concern is the misuse of the information or the wrongful persecution of people because they have the same name as an offender or someone who was wrongfully accused of a crime and later acquitted.

Until we can be assured that the information will not harm any innocent people or prevent guilty people from rebuilding their lives, maybe we should err on the side of caution.

Anyone who has read the

magazine *Gauntlet* knows about the many cases where people's lives were destroyed because of the ability for information to be disseminated widely and instantaneously. The Web does not

allow us to remove erroneously posted information from people's minds after finding out that a previous posting was in error.

*Michael Ryder  
North Las Vegas*

## Teletoons



Phil Frank and Joe Troise [babe@sfgate.com](mailto:babe@sfgate.com)

Go online for:

More reader views on tracking sex offenders





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PROBLEMS PERSIST.

## A (barely) passing grade

By Neal Weinberg

**T**he move to Web-based management tools is on, and users are reaping at least some of the promised benefits. But age-old problems of automation, reliability and integration of network and systems management tools remain largely unsolved.

In a nutshell, these are the most telling findings of the 1998 *Network World* Network Management Survey. Sponsored by Deloitte & Touche Consulting Group, the survey is based on telephone interviews with 202 *Network World* readers who use network and systems management tools or supervise people who do.

If responses to this year's survey can be boiled down to a letter grade, vendors scored only a solid C on their ability to deliver the features readers are looking for, says David Lee, senior manager at Deloitte & Touche. That's slightly better than last year's C-, but it's a long way from the honor roll.

Overall satisfaction with the level of improvement of network and systems management products was 3.72 on a scale of 1 to 5, with 5 being extremely satisfied. That's higher than last year's score of 3.44, which was the low watermark since *Network World* began conducting the survey in 1994. However, the 1998 score falls short of the all-time high score of 3.85 in 1996.

The most striking difference between this year's results and those of past surveys is the influence of the World Wide Web. Nearly one-third of respondents said they are using Web-based management tools, as compared with 18% in 1997. Users were particularly happy with the ability of Web-based tools to enable them to manage their nets from anywhere with an Internet connection (3.90); their ease of use (3.81); the ability to share management information with more people (3.76); and the ability to give end users information they can use to help themselves (3.73).

Web-based tools fared somewhat worse in their ability to aggregate information from multiple sources (3.45) and correlate management infor-

mation (3.54). John McConnell, president of McConnell Consulting, Inc., in Boulder, Colo., says that's because many vendors simply grafted a browser interface on existing management products to tackle those chores rather than develop

designing network applications can have easy access to the information. And he wants end users to be able to track the progress of fixes to their particular system.

McConnell predicts the next generation of Web tools, which are just beginning to hit the market, will provide "true Web-enabled management," with features such as real-time updates, pop-out windows and the ability to organize information into easily searchable categories.

### Wrestling with the Web

When it comes to managing Web sites and applications, however, vendors have some work to do. Tools for managing Web-based applica-

### WHAT YOU WANT ...

Here are the top 10 items that survey respondents said would increase their satisfaction with network and systems management tools. Responses are on a scale of 1-5, with 5 being essential and 1 being unimportant.

- |   |   |
|---|---|
| 1. Improved reliability and availability. <b>4.57</b>   | 7. Improved remote management of applications. <b>3.86</b>              |
| 2. Automated responses to end-user queries. <b>4.21</b> | 8. Automated diagnosis and suggestions for fixing problems. <b>3.82</b> |
| 3. Reduced complexity. <b>4.17</b>                      | 9. True distributed systems management. <b>3.72</b>                     |
| 4. Reduced costs. <b>4.08</b>                           | 10. Integrated systems and application management. <b>3.67</b>          |
| 5. Automate repetitive tasks. <b>4.07</b>               |   |
| 6. Improved scalability. <b>4.00</b>                    |   |

### ... ISN'T NECESSARILY WHAT YOU GET

Checking out user satisfaction ratings in light of features they deem most important shows vendors get mixed scores. Respondents said vendors aren't doing a bad job in satisfying their needs for scalability and an integrated tool kit, but they're coming up short on automation and integrated management.

#### Tools or tool features users are most satisfied with:

1. Backup management. **3.75**
2. Scalability. **3.72**
3. Server management. **3.65**
4. Database management. **3.52**
5. Ability to integrate tools. **3.52**

#### Tools or tool features users are least satisfied with:

1. Ability to optimize application performance. **3.19**
2. Ability to manage from one framework. **3.28**
3. Software distribution tools. **3.28**
4. Automation. **3.30**
5. Ability to troubleshoot application problems. **3.31**

Web-based tools from the ground up.

Lee points out that some end users expect to be able to check the status of a trouble ticket with a Web browser no matter where they are, no matter what platform they are on and no matter what platform the information is on. But vendors simply haven't invested enough time in this area, he says.

At United Parcel Service (UPS) of America, Inc., for example, systems architect Richard Weiss is looking for tools that will allow him to send alerts from the central console to a remote IS person's e-mail account. He also wants to post statistical reports on a Web page so groups

tions scored on the low side (3.36), as did tools for managing Web servers (3.49). Lee attributes the relative dissatisfaction with these tools to a combination of heightened user demands and vendors being caught short by the explosion in Internet usage.

McConnell adds that there's a shift under way in the network and systems management world from simply maintaining boxes to maintaining service levels, which are agreed-upon levels of application performance. Tools that can monitor service-level agreements (SLA) are "still relatively immature," but within six months to a year, they

*Continued on page 50*

Get more online:

We've posted the complete survey results online, along with a copy of last year's survey for the sake of comparison.



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Continued from page 47

should be ready for enterprise use, he says. An example would be a tool that measures the response time of a Web-based transaction.

Lee agrees. Network managers have traditionally focused on just keeping the network up, but now they are increasingly concerned with managing the performance of a particular application an end user is running.

Unfortunately, that's where the current tool kits receive the lowest scores. Readers said they were especially dissatisfied with their ability to optimize application performance (3.19) and troubleshoot application problems (3.30).

"We want to know [about a problem] before the users know," says Scott Herron, senior systems engineer at Pharmacy Research Associates, in Charlottesville, Va. Herron is satisfied with the network management capabilities of Hewlett-

Packard Co.'s OpenView, but he wants "something better than the default tools that come with Windows NT" to manage his distributed NT-based system.

So he is looking into HP's ManageX, a systems management product that can monitor SLAs, issue warnings of potential application problems and take automated corrective action. It can also issue Web-based reports. ManageX was developed by start-up NuView, Inc.; HP bought the product in November.

Other products McConnell says will help address service-level and application monitoring issues include:

- Visual UpTime, from Visual Networks, Inc. in Rockville, Md., which monitors WAN service levels.
- WiseWan from NetReality, Inc., in Sunnyvale, Calif., which manages Web bandwidth congestion.

• VitalAnalysis and VitalHelp from VitalSigns Software, in Santa Clara, Calif., which monitor application performance from the end user's standpoint.

• S3, or Street Savvy Software, from Next Point Networks, Inc., in Westford, Mass., a Web-based product that offers real-time service-level information and application monitoring.

## HOW WEB-BASED MANAGEMENT TOOLS STACK UP

### Users are most satisfied with:

Ability to manage remotely. **3.90**

Ease of use. **3.81**

Ability to share management information. **3.76**

Ability to give users information so they can help themselves. **3.73**

### And least satisfied with:

Ability to aggregate information. **3.45**

Ability to correlate information. **3.54**

# What little difference a year makes



Alameda Hospital's IT department has been searching in vain for a product that can track "configurations of workstations, servers and network devices," says Mark Moran, director of IS for the Alameda, Calif. hospital. So far, he has found tools that address bits and pieces of his network and systems management needs but none that offers integrated management and allows for proactive capacity and budget planning.

"I don't think anyone has what we're looking for yet," Moran says.



Those were the first two paragraphs of 1997's Network Management Survey story, published almost exactly one year ago. We recently checked back with Moran and found he's still searching for the elusive product that can do it all.

"If there was a tool out there that really struck me hard, I would go to the CEO and say, 'I need this,'" Moran says. But that hasn't happened.

Moran is not asking for the world. His network consists of 120 client stations supported by six servers running Novell, Inc.'s NetWare 3.12, although he is moving toward a mixed NetWare/Windows NT environment.

It's difficult for Moran to standardize on one

desktop configuration because industry-specific medical applications for areas such as medical records, patient accounting and pharmacy each have particular requirements. And running a 24-hour operation makes it difficult for Moran to schedule maintenance and back-ups.

Given that, Moran says he's looking for five key features in a network management system:

- Asset management, including hardware inventory and software distribution
- Network monitoring, including utilization by application and end user
- Desktop management, including configuration, license metering and remote reboot features
- Automated network documentation
- The ability to manage Novell and Windows NT environments and 16- and 32-bit applications

His current tool kit includes Novell LANalyzer, to monitor the movement of packets on the network, and ClickNet from Pinpoint Software Corp., in San Jose, Calif., to help track network assets and provide an automated diagram of the network.

But if a workstation crashes, Moran finds out the hard way. "We have to wait for someone to call us," he says.

The yearlong search left Moran so discouraged that at one point he asked himself, "Should I wait or just give up?"

Today, Moran is leaning heavily toward the purchase of Intel Corp.'s LANDesk management suite.

He's confident LANDesk can handle asset management, desktop management and the mixed NetWare/NT environment. And he likes the fact that LANDesk will allow him to monitor and configure PCs remotely during off hours. That requires the purchase of special network interface cards, but he says the overall price for the system is reasonable.

What Moran doesn't know yet is whether LANDesk can handle documentation and network monitoring to his satisfaction.

"It doesn't do everything," Moran says of [LANDesk], but "something is better than nothing."

## Whither frameworks?

The emergence of these new point products may be a mixed blessing. They promise to address problem areas but also may exacerbate the problem users already have in integrating management tools from different vendors.

Integration of network and systems management information is the issue management frameworks such as Computer Associates International, Inc.'s Unicenter TNG and IBM's Tivoli TME were intended to tackle. But only 25% of the respondents said they are considering one of the frameworks. The good news for framework vendors, however, is that number is up from 19.5% last year and from 22% in 1996.

By contrast, 55% of respondents said their strategic direction was to use an SNMP-based platform as their network and systems management foundation. Jeff Hersh, a manager at Deloitte & Touche, says the issue comes down to complexity. "The year 2000 is coming up rapidly, and companies don't have 12 to 18 months to implement complex solutions," he says.

McConnell agrees. "Certainly, right now, a lot of the bloom is off the frameworks," which are seen as expensive and difficult to implement.

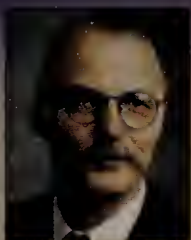
Clark Stockdale, MIS director at Filmet, a Pittsburgh-based printing and photography company, is looking for an enterprisewide management system so he can create a single help desk for his six locations. He looked at Unicenter TNG but decided the integrated solution was overkill for a company of 350 employees. "It seems like more than what I'm looking for," he says.

UPS came to a different conclusion. The company, based in Mahwah, N.J., is moving from a combination of home-grown tools and individual products to the Tivoli TME framework. UPS has spent the past two years consolidating six independent IT groups under the Tivoli umbrella.

If that seems like a long time, consider the scale of the undertaking. UPS' Weiss says the combined system will include 12 mainframes, 90,000 workstations, 1,500 Windows NT servers, 2,300 NetWare servers, 3,000 OS/2 servers and hundreds of AS/400s. He says one

— Neal Weinberg





Directed  
and presented by  
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## TECHNICAL SEMINARS

### 1998 SEMINAR TOUR

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JULY 22-23	PHILADELPHIA, PA
AUG. 10-11	CHICAGO, IL
AUG. 12-13	NEW YORK, NY

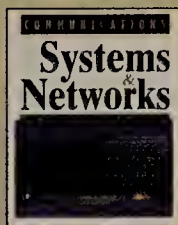
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Essentials of Networking and Data Communications cuts through the confusion of the networked world — across the LAN, MAN and WAN. This seminar is a dynamic, fast-paced, plain-English, common-sense and thoroughly understandable explanation of current and developing communications systems and networks. Acronyms are decoded, technologies are demystified, standards are put in perspective and regulatory issues and trends are explained. Step-by-step and technology-by-technology, the present and future networked world is set in the context of meaningful and cost-effective business applications.

Whether you need a firm understanding of networking technologies and applications or require a comprehensive update of current trends, this invaluable seminar will meet your needs. Packed with insights, Essentials of Networking and Data Communications is both informative and entertaining. This two-day seminar is developed and directed by Ray Horak, an internationally acclaimed network consultant, author and lecturer. Interactive case studies are incorporated into the seminar in order to illustrate the meaningful application of the critical technologies presented.

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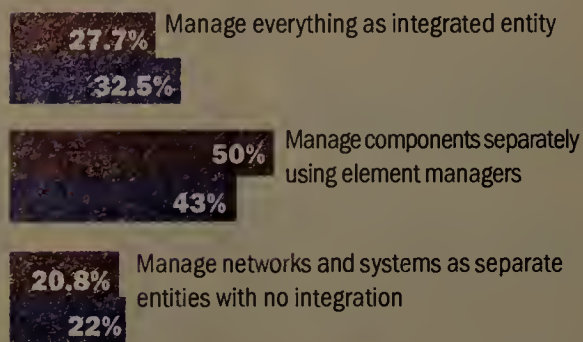


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## INTEGRATION — ARE WE THERE YET?

Users were asked about the level of network and systems management integration they've achieved.



■ 1998 ■ 1997

factor that weighed heavily in Tivoli TME's favor during the yearlong vendor selection process was its scalability.

"Before, everything was discrete. We had six different groups doing six different things. We're using Tivoli to bring all the areas together into one central facility to see how a problem propagates itself across the system," Weiss says. "We're in a reactive mode right now; it's hard to diagnose where a problem is by looking at symptoms."

For example, if a database administrator sees a slowdown in performance, it is difficult to determine whether the problem is hardware, software or network-related because "each area is being addressed by different groups."

With the new system, Weiss hopes to save money and improve service by "not having two groups chasing the same problem down" and by being able to identify potential problems before they occur through a sophisticated set of alerts.

### Seeking to centralize

The UPS effort reflects a strong theme in this year's survey: management integration and centralization. Lee points out that the shortage of IT workers makes it even more important for companies to merge their various management systems and help desks.

### A SNAPSHOT OF THE SURVEY RESPONDENTS

Fourteen industry sectors were identified, with the most respondents coming from manufacturing, government, finance/banking, education, health care and process industries such as construction, petroleum and agriculture.

Of the companies surveyed, 49% had annual revenue between \$10 million and \$1 billion, while another 27% had revenue of more than \$1 billion.

Fourteen percent of the managers surveyed were responsible for more than 3,000 desktops each; 24% were responsible for between 501 and 3,000 desktops.

The managers' network and systems staffs averaged 33 people, including nine responsible for planning, supervision and other long-term management functions.

But the goal of centralization remains an elusive one, with only 28% of the respondents saying they have been able to pull it off. A full 50% are still managing components separately using element managers, and another 21% are managing

networks as one entity and systems as another.

For example, Sealmaster Bearings, in Moorhead, Ky., has 14 sites, each handling its own network, according to network administrator Paul DeBord. He is looking at enterprisewide products from CA and HP that will monitor the LANs and WANs, notify him of potential problems and track usage across the network.

Rusty Sweet is one of those skeptics who doesn't believe such a product exists. "If I could get one product to manage all my equipment, I'd be a very happy man," says Sweet, network manager for GTE's telecommunications division in Indianapolis. He is sticking with point products to manage 4,700 routers, switches and bridges. One reason behind his decision is that he already has specific tools that go with specific vendor products, such as CiscoWorks for his Cisco Systems, Inc. routers.

Sweet's biggest complaint is with the reliability of HP's OpenView. He concedes that "it's a far cry better than it used to be," but says he still gets annoyed when OpenView traps or identifies a problem but fails to display or pass along the alarm, or misses a problem altogether.

In fact, reliability topped the list when readers were asked what items would increase their level of satisfaction with network and systems management tools. Other features that scored high on reader wish lists were automating processes that give quick responses to end users, reducing complexity, cutting costs, automating repetitive tasks and boosting scalability (see graphic, page 47).

For their part, vendors claim to be making strides toward improving their products and responding to customer concerns. Olivier Helleboid, general manager of HP's OpenView division, says HP has improved OpenView's ability to pinpoint the root cause of an event and to automate a response.

The company also added another layer of management capabilities to OpenView that allows a network manager to keep tabs on the performance of an enterprisewide application from SAP AG, for example.

Mike O'Rourke, vice president of enterprise management solutions for Tivoli, says the company has made strides toward integrating point products into the TME framework.

Tivoli has also focused on helping network managers prioritize alerts based on their importance to the business. In the past, when two alerts showed up on a network manager's console at the same time, it was up to the user to figure out which was the higher priority. Now Tivoli's software is able to automatically determine that one alert is from a remote laptop and the other is

from a server running a critical SAP application, O'Rourke says.

Vendors may indeed be making improvements, but it takes time for users to become fully aware of them. Try as they might to keep up, some users say they are simply swamped.

A year ago, Larry Connors, network specialist at Seattle-based Alaska Air Groups, Inc., was struggling to come up with a cohesive strategy to manage the airline's systems, which include mainframes and terminals, Windows and Macintosh PCs, SNA, TCP/IP and IPX traffic, routers and hubs, kiosks and Web sites.

"I haven't done anything on that. I've just been too busy," Connors says. Over the past year, he has been replacing terminals with PCs, phasing out the Macintoshes and adding more T-1 lines. "We're continually adding to the network," he says.

"It's pretty hard to pick a direction [for network and systems management] until things settle down," Connors says. He is looking at a product

called Network Health from Concord Communications, Inc., which is supposed to detect network bottlenecks before they happen. "We don't do anything proactive at this time," he says.

Other respondents are making do with what they've got until something better comes along. Art DeLeon, manager of IT at Kvaerner Metals, in San Ramon, Calif., uses Microsoft Corp.'s System Management Server (SMS) to keep tabs on seven servers (four NetWare, two NT, one Unix) and 450 desktops. He says he's content to stick with that while waiting for the new management features Microsoft

will deliver with Windows NT 5.0, which is expected to ship late this year or in early 1999. NT 5.0 will feature the Microsoft Management Console, which is intended to support management applications from third-party vendors. It is being developed in conjunction with a new version of SMS now in beta.

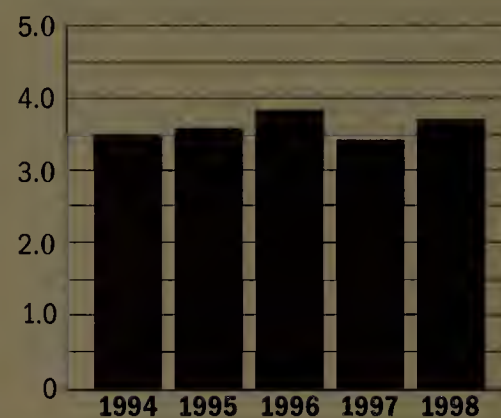
And finally, there are readers who are genuinely happy with what they've got. D. Scott Starkey, network support analyst at Brinks Home Security, in Irving, Texas, began installing Novell, Inc.'s ManageWise last October and got it "fully tweaked out" in January. The product is performing as advertised, keeping Starkey posted on his 20-server, 500-node network.

His next move is to install Novell's ZENworks product when it comes out later this quarter. Starkey is looking to ZENworks for features such as the creation of a "digital persona," so a call center worker can sit down and log on at any workstation and be recognized by the system. "I'm very happy with how things are going," Starkey says.

Too bad he is the exception, not the rule. ■

### DEFINITE SIGNS OF IMPROVEMENT

Respondents were asked to rate the overall level of improvement in network and systems management products in the past year. In the five years we've been conducting the survey, this year's rating, a mean of 3.72, was topped only by 1996's rating. Ratings are based on a scale of 1 to 5, with 5 being extremely satisfied.





SITARA'S SPEEDSERVER IS EXPENSIVE BUT CAN INCREASE WEB PERFORMANCE THREEFOLD — IF YOU CAN GET SURFERS TO DOWNLOAD ITS CLIENT.

## Turbocharge your Web server

By Dennis Williams

**H**ow do you solve the problem of slow Internet connections coming into your Web site? The natural tendency is to add bandwidth or balance the load across more Web servers. But there may be a more effective solution.

Sitara Networks, Inc. claims its SpeedServer Web acceleration product reduces average Web access times by two-thirds, effectively making the connection appear three times faster to the user. We found SpeedServer works as advertised sometimes. With file caching disabled on the browser in order to show a best-case improvement, Web page downloads and updates were performed between one and a half and three times faster. With file caching enabled, pages loaded about twice as fast on average.



depended on the server being accessed. Still, performance gains were noticeable most of the time.

The fact that the SpeedSeeker client is required raises another issue. Users are notoriously reluctant to download plug-ins. But if your site's visitors don't have SpeedSeeker, you'll get no gain from the server-side software, meaning you'll have shelled out some serious money to no effect. Obviously, this is less of an issue for corporate intranets,

but it's a big issue if you want to use SpeedServer on a public Web site.

We found a number of other possibly significant drawbacks. For one, SpeedSeeker does not work with clients accessing the Internet through a proxy server. This prevents American Online, CompuServe and many corporate users from utilizing SpeedSeeker.

Another speed bump: There's limited support for access through a firewall. Sitara has to write custom drivers for each firewall and therefore limits the number of devices it supports. And SpeedSeeker only works with HTTP traffic; File Transfer Protocol (FTP) is not yet supported, though it's planned for a future version due later this year. Also in the works is a Unix version, likely for Berkeley Software Design, Inc. Unix and Solaris.

Another possible drawback is that SpeedSeeker works with only one client at a time. If you frequently run two browsers at the same time, only the first one opened will be accelerated.

You also cannot use Lotus Notes at the same time as SpeedSeeker — you must close SpeedSeeker before starting Notes. For NT users, you must be part of the local Administrator's group to use SpeedSeeker. There also are issues, de-

### Score Card

#### SpeedServer

Server support (35%)	6 x .35 = 2.10
Client support (30%)	4 x .30 = 1.20
Performance (25%)	8 x .25 = 2.00
Installation (5%)	9 x .05 = 0.45
Documentation (5%)	8 x .05 = 0.40
<b>Total score</b>	<b>6.15</b>

Individual category scores are based on a scale of 1–10. Percentages are the weight given each category in determining the total score.

If SpeedServer can provide such gains, why not just run out and buy it? One reason could be the price. For sites with a T-1 connection, SpeedServer costs \$75,000. We think that's steep. The company refused to discuss pricing for other connection speeds. Pricing is based on bandwidth, not the number of servers.

There are two components to Sitara's product: one for the server side and one for the browser. SpeedServer is the software you install on a Windows NT 4.0 server, which may, but doesn't have to be, the same server hosting the Web server. In fact, your Web server may be Unix-based. The only requirement is the NT server must be located on the same local network segment as the Web server.

On the client side, you need SpeedSeeker,

which runs under Windows 95 and Windows NT 4. It works with Netscape Navigator and Microsoft's Internet Explorer Version 3 or above. SpeedSeeker is a free download from the Sitara Web site, but the company forces you to fill out an annoying registration form before it will let you have it.

Sitara claims clients running SpeedSeeker should see an improvement no matter how fast the speed of their Web connection, whether it's T-1, ISDN or modem. That appears to be the case, but SpeedSeeker won't entirely

make up for poor line quality, congested connections and busy Web servers. Our test results varied from day to day and by time of day, and

### Net Results

#### PROS

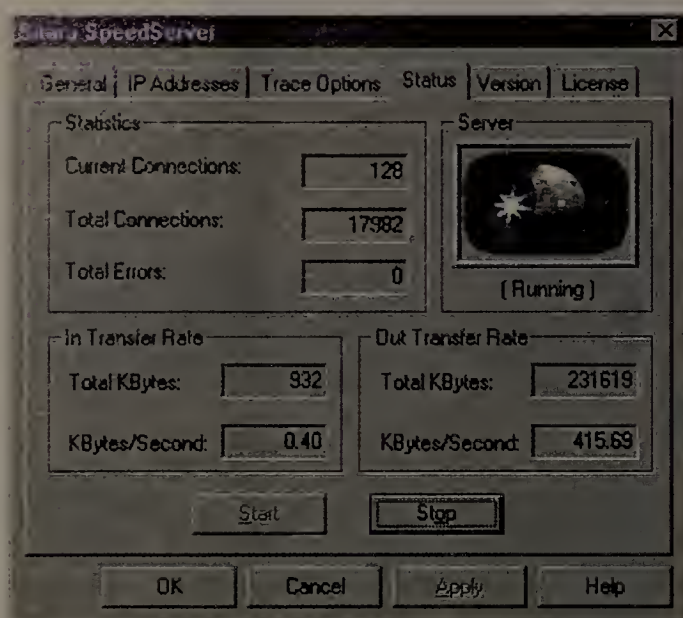
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\$75,000 for T-1 worth of bandwidth

▲ Can improve Web site customer access times as much as threefold

#### CONS

▼ Expensive  
▼ Users must download client software to see benefits  
▼ Won't work when clients are behind firewall or proxy server  
▼ No tools to tell how many visitors are using Sitara client software





There's not much to configure on the server side, but this screen provides important statistics at a glance.

tailed in the product's Readme file, with using SpeedSeeker in conjunction with Active Desktop.

One last problem with SpeedSeeker is that you have no way of knowing whether visitors to your site are utilizing the client plug-in. There are no tools available to show how many hits are with SpeedSeeker and how many are without it. This makes it tough to justify the cost of the product or calculate a return on investment.

#### How do they do it?

SpeedSeeker works by improving and extending the functionality of the Internet transport

protocol, addressing five inefficiencies to help improve performance (see story below). It does not replace your existing protocol stack, however, so your existing network configuration is unaffected.

Installing and configuring SpeedServer is simple. SpeedServer runs as an agent under Windows NT Server and is managed by an applet accessed through the control panel. You can enable event logging and tracing, and specify which servers to support, as well as monitor server status, connection information, throughput and error information.

To install the SpeedSeeker client, you need to download and run a 1M-byte installation file from Sitara's Web site and reboot your PC. Each client must perform this installation individually, unless the network administrator chooses to use an existing software distribution application to install it on selected workstations.

When loaded, an icon appears in the system tray and rotates when you access a SpeedServer-enhanced Web server.

## More online:

Download SpeedSeeker for free from Network World Fusion and test your performance gains on a list of SpeedServer-enabled sites.

[www.nwfusion.com](http://www.nwfusion.com)



We loaded our test network with traffic and checked performance over both local and dial-up links. Our response time was cut nearly in half in this simulated environment, but the real proof of the product's worth should come from testing it live on the Internet.

## How We Did It

We installed SpeedServer in our lab on a Windows NT 4 Server with Service Pack 3 running Internet Information Server 4.0. We then loaded the network with traffic and tested how long it took to load a sample Web page. Our client was a Windows 95 workstation running Internet Explorer 4.01.

For a real-world test, we connected the Windows 95 workstation to a local ISP with a 33.6K bit/sec modem connection. We accessed SpeedServer-enabled sites in a variety of situations over a period of one week.

Using a stopwatch, we measured download performance from the only three Web sites that currently employ Sitara: sitara.net, jcrew.com and sportsnetwork.com. Performance gains varied drastically from site to site.

The best results we experienced were on jcrew.com, where the main page took 16 seconds to download without SpeedSeeker and just six seconds with it. Subsequent visits to the page took five and three seconds, respectively.

The worst results we experienced were on sportsnetwork.com, where the main page took 45 seconds to download without SpeedSeeker and 40 seconds with it. Part of our testing at the site took place during one of the college basketball Final Four playoff games, when we expected the site to be congested. We were somewhat disappointed to see little or no performance gains during the big game.

Over a period of one week, SpeedSeeker on average cut response time nearly in half. At times, we experienced no performance gains, while at other times our browsing went three times as fast.

Whether your customers connect to the Internet with a 28.8K bit/sec modem or a 1.5M bit/sec T-1 line, Sitara's SpeedServer can improve their online experience. You'll have to decide for yourself whether saving them a few seconds is worth \$75,000.

# Is inefficiency killing performance?

**T**he idea behind SpeedServer is to improve performance by increasing the efficiency of the data transmission between the browser and the Web server. The five main culprits for the inefficiency on the Internet today, as identified and addressed by Sitara, are the following:

1. Recovery of lost packets requires resending entire groups of packets, including packets that were successfully received. Sitara resends only the lost packets.

2. In order to minimize congestion, data throughput is limited by a "slow start" mechanism. Rather than starting at a slow data rate and slowly increasing that rate until the highest rate in common is achieved, Sitara starts out file transfers at the fastest rate in common. This rate often is the speed of a modem on the browser side of the connection but could be T-1 speed for clients on corporate networks (as long as they're not behind a firewall or proxy server).

3. Each element on a Web page must be sent and received separately. HTTP 1.1 has not yet been ratified but will include consolidation of data on a Web page as long as the content comes from the same Web server. Sitara currently offers this advantage but will also consolidate content even if it comes from multiple servers, as long as they're on the same LAN segment.

Companies that sprinkle banner ads through-

out their site will not get the same benefit from SpeedServer if the banners come from servers maintained by the banner company. Because they come from across the Internet, banner ads cannot be consolidated with the rest of the page.

4. The User Datagram Protocol (UDP), which is used to send streamed data such as audio and video, offers no overload protection. Sitara separates the functions that prevent overload of the Internet from those that prevent overload of the receive buffer on the browser side of the connection. Sitara allows the receive buffer to overflow in an attempt to keep streaming data coming to the computer. This improves the quality of audio and video for the user and eliminates unnecessary flooding of the Internet.

5. Numerous handshakes are required for each data transfer. Sitara eliminates non-data bearing packet exchanges. With Sitara, the initial handshake request includes data, while the final handshake is sent with the last data transfer. These small savings add up when using highly interactive Web applications.

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Williams is a freelance writer and network consultant in Alpine, Utah. He can be reached at [Dennis@ProductReviews.com](mailto:Dennis@ProductReviews.com).



## 1998 SEMINAR DATES AND LOCATIONS:

April 6	Washington, DC
April 7	Philadelphia, PA
April 22	Atlanta, GA
April 23	Dallas, TX
May 12	Chicago, IL
May 13	Minneapolis, MN
May 19	Boston, MA
May 20	New York, NY
June 9	Newport Beach, CA
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# Management Strategies

## Making security fun

*Unique board game gets employees talking about how they would handle hypothetical network security dilemmas.*

By **Mitzi Waltz**

**N**etwork security is no game, but tackling online security contests or joining a hacking challenge makes learning about it more fun. Strategic Gaming Partners (SGP) is taking the concept to the trenches with The Network Security Game, a board game that gives network security instructors a new way to guide staffers through hypothetical security breaches.

It's a bit like combining Parcheesi with facilitated discussion, except the accent is on cooperative learning, not cutthroat competition. "The ideal situation is that we have a wide range of people from different parts of the organization together," says Fred Cohen, a partner at SGP in Livermore, Calif. "There might be five or six teams in a room, and there's a benefit in getting the ideas generated from one group shared with another."

### How it works

SGP uses the client's current security policy documents to generate appropriate scenarios, then creates a semicustomized game complete with boards for each team or a special overhead transparency board. Purchasers have included a large ISP and a major electronics firm, among others, Cohen says. The game costs \$5,000, and up to 60 people can play at a time.

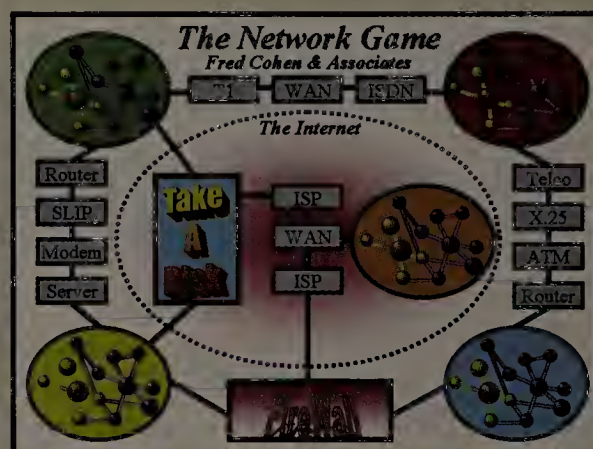
When the trainees gather, each team gets a board and scenarios to discuss. The responses they choose determine how many points they win and how quickly they move around the board. Certain activities — such as moving onto the "Internet" space without going through "Firewall" first — merit a "Risk" card. In this game, risk can be good, but usually it's not.

A typical scenario asks players how they would respond if a trusted, long-term contractor violated company policy by downloading software from his firm's Web site without checking for viruses. Is that OK? Is it OK only because the software came from the contractor's own site but wouldn't be if it came from another source? Or it just a really bad idea?

Deceptively simple questions such as this get players talking. "It's important to get critical software quickly," one might say. "I trust the contractor and we don't want to offend him," another adds. "The virus scan process at our company is time-consuming, so it's routinely ignored," an end user complains. "The virus scan process is absolutely essential, every time," the security guru insists. Soon, the whole group is examining the nuances, making a choice and living with the consequences. Facilitators keep things on track and eventually bring the teams together to discuss their answers and rationales. More ideas are

exchanged during this phase.

Fred Villella, president of New Dimensions International, an information protection training and services firm in Cardiff, Calif., likes the concept behind The Network Security Game. "It's all about preparedness and consequence management," Villella says. "When you get people in the productive thinking process, you get the juices flowing and create interactions."



### SAMPLE SCENARIOS

Questions such as the following get employees talking about your corporate information security policy.

- What would you do if a contractor downloaded software without checking it for viruses?
- What should you do if you detect an Internet security breach?
- Is it OK for employees to use e-mail and the World Wide Web for personal business?

### Games as a learning tool

Although coffee mugs with security slogans and formal training have their place in developing security awareness, games can be particularly valuable, agrees Richard Power, editorial director of the Computer Security Institute (CSI) in San Francisco. "Anything that engages the user at the same time that you're giving them information [is] a good thing," he says. "Games that educate [employees] to information protection problems and [show them] what they can do to exacerbate or remedy them can pound the message in."

CSI introduced The Network Security Game at its 1997 security conference, and the product got rave reviews from participants, Power says. "We've always used game playing in terms of attack and counterattack activities," he adds. "Then there's facilitated risk analysis, where you sit down and conjure up everything bad that could happen to your network and the data that

flows over it, figuring out what protections need to be put into place." The Network Security Game combines aspects of both approaches.

The spirit of cooperation isn't always there in a straightforward strategic planning situation, Cohen cautions. "Because it's a game, employees have a tendency to talk more, and more openly," he says. "Almost always teams will come up with issues that weren't anticipated. Somebody might say, 'I don't think that could happen because we have such and such installed on our network.' Then the other person says, 'Well, it happened last Tuesday.' You find out about a lot of incidents that were never reported."

Unlike one-player computer simulation games, organizational knowledge can facilitate strategic consensus. And having fun is the best way to learn, says Matt Bishop, a computer security expert and professor at the University of California, Davis.

### Boardroom games

SGP and competing firms produce other board games that explore workplace policy issues such as sexual harassment, race relations and corporate ethics. The law tends to dictate corporate guidelines for those types of issues. However, that's not the case with network security — new security problems are always emerging. From the spoofing threat a few years ago to sophisticated PBX fraud schemes, there's always something original to explore.

Some clients use The Network Security Game to jump-start or overhaul their policies, Cohen says. "We'll create a range of scenarios and answers for 20 or 30 policy makers, and what they decide when they play becomes the policy."

Policies may be challenged during employee training sessions, too, he says. At one client site, an employee was using the 'Net on his lunch break to shop for a used car. It turns out the corporate policy even allowed employees to use company computers to run their own businesses, as long as it wasn't on company time, Cohen says. The company changed the policy after someone pointed out that it was a legal morass.

For more information on The Network Security Game, go to SGP's Web site at <http://all.net/games> or send e-mail to [fc@all.net](mailto:fc@all.net).

Waltz is a freelance writer in Portland, Ore. She can be reached at [infobahn@teleport.com](mailto:infobahn@teleport.com).

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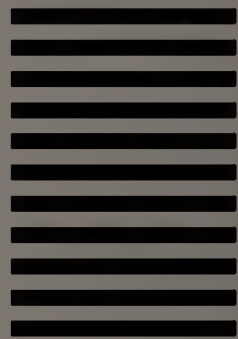
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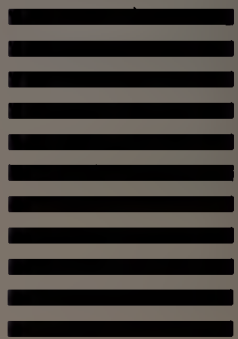


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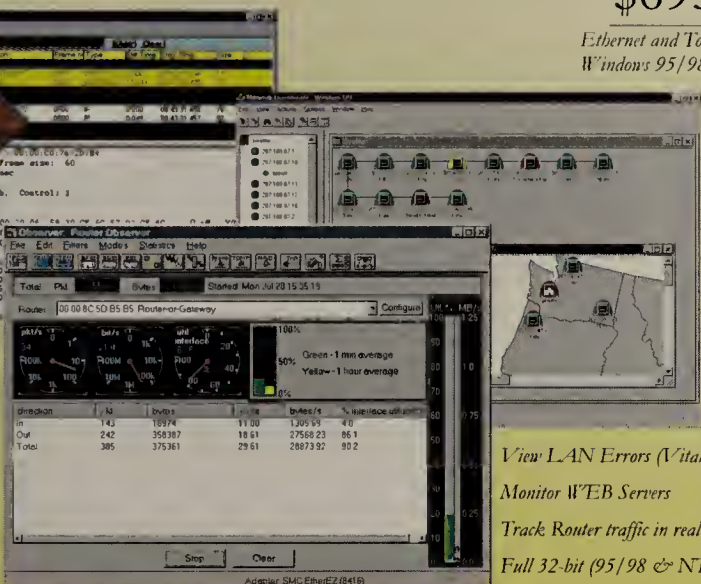
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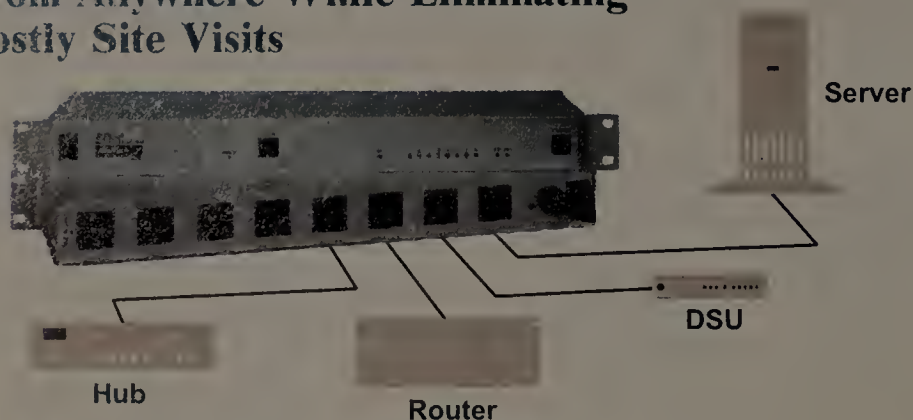
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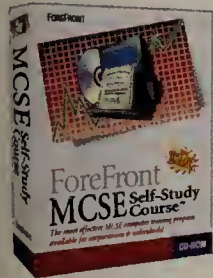


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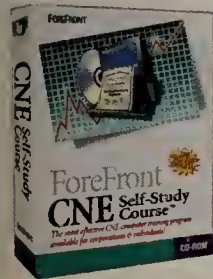
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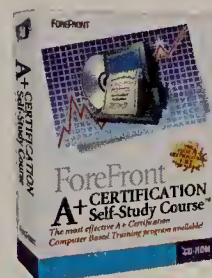
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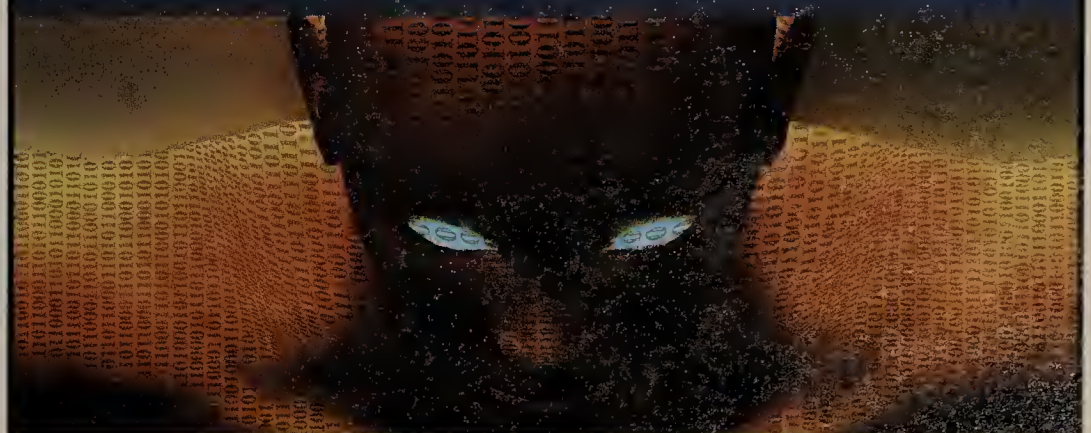


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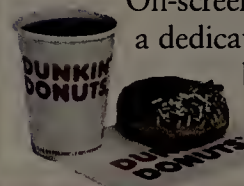
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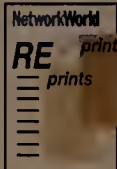
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## OBI

Continued from page 1

specification this week, which they promise will get a real-world workout in an upcoming round of interoperability tests.

The first edition of OBI was designed to ensure interoperability among different vendors' electronic commerce products and to deliver a high level of security for online buyers and sellers.

Among other things, the specification defined online shopping carts and Internet-based Electronic Data Interchange (EDI).

Under one scenario an online buyer proves his identity at an OBI-based server using an X.509 digital certificate. That way, the buyer is presented with a personalized catalog of items and pricing specific to his organization.

But what worked on paper with OBI didn't work in early product and customer implementations, acknowledged Terry Pavone, manager of emerging technologies at Boise Cascade Office Products Corp., an OBI Consortium member. "OBI is undergoing a significant amount of revision," Pavone said.

"We wrote OBI 1.0 in a vacuum. No one had implemented it," admitted Peter

Roden, CEO at Lexington, Mass.-based SupplyWorks, Inc. A few weeks ago, SupplyWorks officially handed over management of the OBI Consortium to CommerceNet, a Palo Alto, Calif., research organization.

"Now that a number of programmers have implemented 1.0 in code, we found

**OBI FAST FACTS**

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- Establish a technical architecture for business-to-business Internet-based purchasing, particularly for high-volume, low-cost items.
- Encourage development of interoperable "buyer-side" and "seller-side" software components so that users can avoid proprietary systems that might make communications difficult between trading partners.
- Secure online procurement through digital certificates.

we needed to clean some of it up," Roden said.

Improvements, in EDI coding in par-

ticular, will be reflected in OBI 1.1. There's already discussion at the OBI Consortium about a Version 2.0 that would probably be based on the Extensible Markup Language.

Several OBI members — who pay \$40,000 per year to belong to the consortium — said they are pessimistic about OBI's fate.

"OBI's not going to happen — it's too complex," said David Rome, vice president of marketing at Ariba Technologies, Inc.

"Frankly, I'm not sure OBI 1.1 is going to be a whole lot easier than 1.0," commented Brad Haigis, product manager for Open Market, Inc.'s LiveCommerce electronic catalog, which is used by online sellers. Haigis said he does not think the new version will be any easier because the official OBI specification requires corporations to issue digital certificates to all of their online buyers. In reality, he said, companies are finding certificates too complex to manage.

Haigis said Open Market still views OBI as critical to the future of business-to-business electronic commerce, but he added the company doesn't plan to take part in the upcoming interoperability demonstrations.

Two companies certain to be there,

though, are Intelisys Electronic Commerce LLC, which is 50%-owned by Chase Manhattan Bank, and Netscape Communications Corp.'s Actra division.

Intelisys claims its IEC Enterprise "buyer-side" product supports OBI 1.0 and that the company will tinker with the product to support OBI 1.1.

Although there is no OBI compliance testing or certification yet, CommerceNet is expected to step in later this year on that score.

"OBI may not be a slam dunk yet, but it put a stake in the ground and we're going to support it in future versions as necessary," said Scott LaForce, vice president of electronic commerce at Chase Manhattan.

"We're still very positive about OBI," said Charles Landau, Netscape product manager for the BuyerXpert electronic catalog product, which will ship in a few weeks with support for OBI 1.1.

Microsoft Corp., an OBI Consortium member, hasn't tried to build OBI 1.0 in to its products but plans to do proof-of-concept testing with the revised version of OBI.

Corporations should remain undaunted by the setbacks to OBI, Pavone said. "It will be real and alive later this year," she predicted. ■

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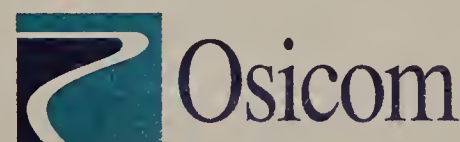
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## Interop

Continued from page 1

Windows product strategy.

But perhaps the biggest area of focus was bandwidth, and ensuring that there's enough of it to support skyrocketing traffic.

"We haven't seen the worst of bandwidth consumption yet," said John Sidgmore, WorldCom, Inc.'s chief operating officer and

interface cards.

Several members of the alliance, including Madge Networks, IBM, Olicom, Inc. and 3Com Corp., demonstrated prototypes of these speedy token-ring products. Alliance members also plan to begin work on gigabit token-ring standards before year-end.

### Convergence chatter

Convergence — running



Wall ballet might not have had anything to do with Lucent's product offerings, but it did draw a crowd.

CEO of UUNET Technologies, Inc.

In his keynote, Sidgmore said "when new applications start to come on the Internet, we will see [traffic] levels we have never seen before.

"If you're not scared, then you don't understand," Sidgmore said. "In a few years, the Internet will take up half the bandwidth in the world."

Bandwidth demand is doubling every three to four months. "That's a growth rate of 1,000% per year," Sidgmore said.

LANs need more bandwidth, too, in order to handle increased traffic. This is one reason users were relieved to hear the High-Speed Token Ring Alliance announce that it is right on schedule for the eventual roll-out of 100M bit/sec adapters, switches and network

voice, data and video over public and private packet-switched networks — was another hot topic at the show.

3Com CEO Eric Benhamou tackled convergence in his keynote address.

"Voice networks are similarly structured [to data networks] and totally parallel," Benhamou told attendees. "Where the voice signal becomes digitized, it can be converged."

Numerous vendors' booths proclaimed variations on the theme of "Convergence is here!" But in sessions on the outer edges of the conference — particularly those at two affiliated conferences, CommUnity and the ISP Forum — the more common thought was "Convergence is not quite here yet."

Perhaps Lucent Technologies, Inc. captured the senti-

ment best. The theme at the company's lively booth and at Lucent's packed press/analyst briefing was: "What's it going to take to bring voice and data networks together?"

Lucent avoided sweeping announcements at the show, instead attacking another convergence problem: The fact that there's no point to convergence if it costs more money than separate networks.

Lucent announced Version 2.1 of its Multimedia Communications Exchange server, with radically new pricing for the once-expensive mixed-media conferencing tool. Previously costing more than \$1,000 per seat, Lucent brought the price down to as little as \$130 per seat for larger installations, essentially by giving away the client interface. However, the entry point is still \$18,500 for the server itself.

Over at CommUnity, a conference within NetWorld+Interop that focused on convergence, some presenters were anxious to

explain why voice-over-IP technology is talked about more than it's installed in enterprises.

Alan Taffel, vice president for marketing and business development at UUNET, said it's a "myth" that voice traffic will eat up scarce bandwidth on wide-area IP networks. "We don't think it's a big issue," Taffel said, citing networks already running at up to OC-12 (622M bit/sec) capacity. Besides, he added, by the time voice-over-IP technology becomes more widely used — perhaps over the next two years — a great deal of new bandwidth will have come on board nationally.

Instead, he said, it's the public switched telephone network-to-IP gateways installed at service provider points of presence and central offices that are holding up the works because they're not scalable. "This gateway stuff is just not ready for prime time," Taffel said.

The time is now for voice over IP in private VPNs, but voice over the Internet will take another six

to 12 months, according to Paul Wallner, president of Hypercom Network Systems, Inc. "IP is definitely mature enough to deliver toll-quality voice in private nets," Wallner said, but quality-of-service issues still have to be resolved before the same can be said for the Internet.

Hypercom has installed more than 100 voice-over-packet networks to date, the majority of which use frame relay. But about five installations support voice over IP, the latest of which is a network just completed for a 200-store retail chain that Wallner declined to name.

### Microsoft exec bugged

Speaking of prime time, Microsoft Senior Vice President Jim Allchin was given a keynote slot to update attendees on Microsoft's software.

Unlike Microsoft CEO Bill Gates, who last month was bitten by a software bug during a Windows 98 demonstration at Comdex/Spring '98, Allchin's presentation ran fairly smoothly.

## Reporter's notebook: Hikers, Beetles and Babe

Vendors at NetWorld+Interop 98 may have been screaming about virtual private networks, Layer 3 switching and Web-based network management tools, but here's what attendees were really paying attention to:

### Now that's long distance

AT&T showed off a telemedicine application that linked hikers scaling Mount Everest to doctors at the foot of the mountain and at Yale University School of Medicine in New Haven, Conn. The application uses satellite, transoceanic fiber and ISDN to let doctors monitor the health of climbers scaling the mountain. Currently, doctors are monitoring the heart rates, respiratory signs and endurance of a group of five climbers training for this month's Everest Extreme Expedition. On the video link at the show, hikers demonstrated the vital-sign monitors, specialized phones and headset cameras they will wear to enable doctors to monitor their conditions. The climbing team can be tracked at [www.mountainzone.com](http://www.mountainzone.com).

### Sit down, have a nosh

Motorola went all out to build an authentic 1950s-style diner, right on the show floor. Complete with faux hamburgers

and French fries, the Digital Diner featured blue-plate specials such as LAN switching and routing, ADSL and ATM switching. Side orders included specialized microprocessors. The diner's overall effect, however, was to make hungry show-goers find the nearest real food stand for some munchies.

### The Babe lives

OpenConnect had a baseball theme this year. The company held a drawing for an autographed Nolan Ryan baseball, and then Babe Ruth paid a visit to the booth. Home run king Ruth said his one wish would have been to face fastballer Ryan in a game — the two played some 50 years apart. Ruth also said he wanted to talk to the bright light in Boston who decided to trade him to the Yankees in the early 1900s. The trade was one of baseball's all-time steals.

### The bug lives, too

Three vendors used Volkswagen's hot-selling new Beetle to attract show-goers. Newbridge added a little golf twist to its bug-off. Attendees had to sink a putt around the car — a putt-putt hole in one. Once you did that you were then in a drawing to win the Beetle. "Come to think of it," one observer said, "the car would make a nice golf cart."

— Michael Cooney

Senior Editor David Rohde contributed to this notebook.

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However, one error message did pop up while he was trying to demonstrate a new feature of the next version of Windows NT 5.0, and that provoked laughter across the room.

Allchin used part of his presentation to outline the company's product release timeline. Although Windows NT 5.0's second beta is due early this summer, Allchin said "we are focusing on quality." In Microsoft-speak, this could mean delays.



Microsoft executive Jim Allchin left attendees guessing as to when Windows NT 5.0 will really ship.

Also on tap from the company are:

- Windows 98 — due June 25
- NetShow 3.0 beta — available now for download from Microsoft's Web site
- Commercial Internet System 2.0 beta — available now
- Windows Terminal Server — available next quarter
- Windows NT Services for Unix beta — coming this summer
- SQL Server 7.0 — due out this year
- Systems Management Server update — due out this year

#### VPN action

Elsewhere at the show, you were likely to run into virtual private network (VPN) technology. But users may well have come away more confused than when they started, given all the options for doing essentially the same thing.

Start-up Aventail Corp. of Seattle, for example, was showing software that enables users to establish VPNs for applications ranging from remote access to business-to-business links or extranets. The company uses protocols, including Point-to-Point Tunneling Protocol, Layer 2 Tunneling Protocol and SOCKSv5, to ensure security.

But CyberGuard Corp. of Ft. Lauderdale, Fla., had a different take entirely. It sells public-key encryption-based security software that enables users to, for example, establish areas on Web sites that only authorized users can access. The technology works with back-end applications such as Web-enabled host access packages to give authorized users access to mission-critical host applications, said Patrick Wheeler, vice president of sales in North America for CyberGuard.

VPNs were the focus of the VPN Hot Spot, a booth where VPN vendors deliv-

ered to packed audiences non-stop tutorials on how to set up secure dial-up remote access to corporate networks via the Internet.

While the actual products are still evolving rapidly, customer interest is high and that has not been lost on big network vendors. 3Com, Bay Networks, Inc., and Cisco Systems, Inc. were all talking the

VPN talk and showing gear.

Shiva Corp., once the leader in remote access, said its VPN gateway box is key to the company's comeback. And Compaq Computer Corp. officials indicated keen interest in VPNs, although they did not announce firm plans.

Some smaller vendors, such as VPN specialist VPNet Technologies, Inc., dem-

onstrated their products over the show's simulated Internet. Others, such as start-up Assured Digital, have big VPN plans, but the company didn't have its hardware plugged in when we dropped by. ■

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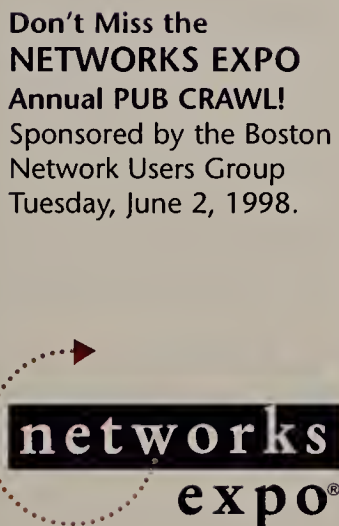
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## In the woods without electronic mail

**L**ast week, The Gibbs Institute (family division) went on holiday to Yosemite. I, however, wasn't about to leave my business to its own devices for a week. Accordingly, I packed up my laptop and we hit the road. I assumed that phone jacks would be easy to find — after all, this is America.

We had booked rooms at the Wawona hotel just inside the park boundary, and the hotel's surroundings were splendid. My pioneer's heart started to beat mightily with the crisp, clean mountain air, the sight of soaring, majestic pines, and the persistent feeling that one might be attacked at any moment by a hungry bear.

Now I am told that tourists are advised to wear tiny bells on their clothing when they go hiking in bear country. The bells scare away *most* bears. Tourists are also cautioned to watch the trail, paying particular attention to look for bear droppings that will indicate the presence of bears.

I am also told you can easily identify bear droppings because they have tiny bells in them. But I digress . . .

We checked into the hotel, and I discovered that there were no phones in the rooms. Ho-hum. Well, they must surely have phones in the lobby with computer modem sockets on the side. Nope, they didn't. In fact, the hotel only had two pay phones out on the back porch! Could the hotel management let me use their phone? No.

Alright, I thought, I'll wait until we go to the Yosemite valley. The Ahwanee hotel down there is a much more flashy place; they must have a public phone. So as we went tramping around the Mariposa grove of giant redwoods (wonderful!) and threw snowballs, I kept thinking "I've got to get my e-mail."

Next day, we went to the Ahwanee and it did indeed have public phones. They were, however, hard-wired, did not have sockets and, I suspect, dated from the turn of the century. Back at

the Wawona I resorted to pleading, and at 6:30 a.m., management kindly let me unplug their fax and download my e-mail — all 260 messages of it from three days out of the office.

Many people have since chided me, "Oh, you should have left your computer at home." "You should have had a *real* holiday." (Why is it that in

this case advice givers always put that emphasis on the word "real" as if there is some kind of alternative, false holiday?)

What these people don't understand is that e-mail isn't just business. It is an essential part of my, and many other people's, life. I miss not reading

my news delivered by e-mail, the exchange of jokes with friends and colleagues, and the chatter of lists and newsgroups.

Many people assume that computers isolate us, separate us from "the real world." But the fact is our lives are richer and more interesting because of our electronic communications. We e-mail addicts tend to have huge circles of friends, acquaintances and contacts who we stay in touch with because it's so easy.

There's also the consideration that business for many people (myself included) can no longer go on hold for a week or even a day or two without e-mail. Sometimes the business communications are no more than short messages such as, "Is this OK?" or "Where's the . . ." but such interactions are important to keep things moving.

It is when you go to places such as Yosemite that you realize what it means to be cut off. I'm going to invest in one of those retro-looking acoustic couplers and pray for low earth-orbit satellite communications to become available.

So, be warned. If you're an e-mail addict, staying in touch can be much harder than you might think, even in America.

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Mark Gibbs



**CAMELOT ON THE CONVENTION FLOOR** There they were, more than 50 new network companies tucked into a corner of the vast Las Vegas Convention Center floor. Full of hype and promise — oops, sorry, we meant hope and promise — these companies that filled up NetWorld+Interop 98's Start-Up City last week were eagerly pitching their tents, displaying their wares and harassing passers-by. But they lacked one thing: leadership.

That was where I came in. I carried a press badge.

Recognizing a golden opportunity, I immediately embarked upon a campaign to become mayor of Start-Up City. And I vowed to win the support of my prospective constituents the old-fashioned way — by buying votes.

In this case my form of currency was coverage. I agreed to write about any start-up that supported my bold mayoral bid.

The results were spectacular — a landslide victory and three heady days in a wholly fictitious office.

Now it is time to hold up my end of the bargain. What follows are profiles of three Internet-related companies in Start-Up City.



**WHEN IT'S SMART TO SWITCH** Many companies have rolled out load-balancing products that help enterprises ease network bottlenecks by routing Internet traffic to available servers, a process similar to bank customers waiting for the first available teller. However, this method only works if the enterprise's Web servers all contain the same information.

**ArrowPoint Communications, Inc.** of Westford, Mass., has taken this concept a step further with its Content Smart Switch. The product is designed to read embedded information in any Web traffic and then route the traffic to the optimal Web server. This avoids the need for mirroring content on all Web servers.

Founded in April 1997, ArrowPoint is funded by **Matrix Partners**, **North Bridge Venture Partners** and **Accel Partners**.

ArrowPoint is now beta-testing two versions of the product: The CS 100, for smaller Web sites or remote satellite Web sites, and the CS 800, for large sites. The products are connected to a customer's servers.

Scheduled to ship in June, the CS 100 will cost \$15,000 with just a LAN port, and \$20,000 with a WAN interface added. The CS 800 is slated to ship in August and will start at \$30,000.

**SECURITY YOU CAN AFFORD** Targeting the low-cost network security market, newcomer **NetScreen Technologies, Inc.** recently unveiled two secure-packet-processor products that integrate several functions on a single platform.

NetScreen-10 and NetScreen-100 each include a firewall, virtual private network capabilities and traffic-management features. The hardware devices are designed to bridge servers, PCs and routers in corporate LANs to screen and manage data traffic to and from the Internet.

Both products can be remotely configured from standard Web browsers and include filtering, URL blocking and user authentication.

NetScreen-10 supports 10M bit/sec wire-speed screening and costs \$4,000. NetScreen-100 can handle 100M bit/sec and is priced at \$10,000. Both products are scheduled to ship this month.

NetScreen, based in Santa Clara, Calif., was founded last October.

**KEEPING YOUR ENTERPRISE'S EQUILIBRIUM** **InfoLibria, Inc.** says improving the speed and reliability of your network should be as easy as plugging in a box.

So the company last week announced a distributed network-caching hardware product developed at **Boston University**.

The product, DynaCache 200, is designed to monitor requests for Internet content and store information closer to the users who request it most, according to CEO **Ian Yates**. Further, DynaCache ensures that advertisers and content providers receive cookie and "hit" data, something Yates says other caches obstruct. Based in Waltham, Mass., InfoLibria was founded last year and is financed by **Adams Capital Management**. The start-up is targeting ISPs and large enterprises. DynaCache was released in beta last week and is scheduled to ship in the third quarter at a price of \$39,475.

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